THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, LONDON [ONE HUNDRED AND SIXTY PAGES.] TELEPHONE NUMBER—5356 GERRARD

No. X. OF VOL. II., 1908. No. 4436. Vol. CLXXV. LONDON, SATURDAY, SEPTEMBER 5, 1908. PRICE 7d.; POST FREE, 7½d. [Pp. 120+40.

NOTICE.
NEXT YEAR'S ISSUE OF
THE MEDICAL DIRECTORY.

The ANNUAL CIRCULAR was posted on Sept. 1st. The Volume will be published about Dec. 14th and it will again be *six weeks more up to date* than has been customary.
Subscription Copies at 11s. 6d. (carr. free U.K.). Please order now.
20,000 is the average number of Important Alterations.
7, Great Marlborough-street, London.

J. & A. CHURCHILL'S
FIVE BOOKS OF A.D. 1908
on MIDWIFERY and GYNÆCOLOGY.
1. EDEN'S MIDWIFERY. 2nd Ed. 12s. 6d. net.
2. MIDWIFERY. 5th Ed. 10s. 6d. net } Dr. JELLETT'S "SHORT PRACTICES."
3. GYNÆCOLOGY. 3rd Ed. 12s. 6d. net
4. NURSES' MIDWIFERY. 3rd Ed. 6s. 6d. net } ROTUNDA TEACHING.
5. LONGRIDGE'S MANUAL FOR MIDWIVES. 3s. 6d. net.
*** All these books are full of New Illustrations, specially drawn, and some of them are in two or three colours. Please write for Prospectus.
London: 7, Great Marlborough-street.

THE PRESCRIBER.
A Monthly Journal dealing with the Newer Remedies.
3s. 6d. per annum, post free. Specimen copy free.
"Prescriber" Publishing Office, 137, George-street, Edinburgh.

Pp. xii.+168, with 91 Illustrations. Price 6s. net.
HANDBOOK of INTESTINAL SURGERY.
By L. A. BIDWELL, F.R.C.S. Eng., Surgeon, West London Hospital; Lecturer on Intestinal Surgery and Dean, Post-Graduate College.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

DAVIDSON'S BULLETIN of NOVELTIES.
Issued periodically. May Number very interesting.
Post free from
F. Davidson & Co., 29, Great Portland-street, London, W.

Works by GEORGE HERSCHELL, M.D.Lond.
Third Edition. Demy 8vo. Price 5s. net. By post 5s. 4d.
INDIGESTION: The Diagnosis and TREATMENT OF THE FUNCTIONAL DERANGEMENTS OF THE STOMACH.

Just Published. Second Edition. Demy 8vo. Price 1s. 6d. net. By post 1s. 9d.
THE DIAGNOSIS OF CANCER OF THE STOMACH.
With Special Reference to its Recognition in an Early Stage.

H. J. Glaisher, 57, Wigmore-street, W.

New Work. 240 pp. Illustrated. 5s. net.
SPINAL CURVATURES: The General Principles of their Treatment.
With a Critical Analysis of the Gymnastic Theories.
"*We must not fail to recognise, and to record our recognition of, the care and fulness with which the author has treated his subject. The book will be of value as containing the best exposition of this method of treatment.*"—THE LANCET.
"*We attach importance to a supporting apparatus in the treatment of scoliosis. We do think that if the spine is supported in this way during growth it may grow straight, just as a bent tibia may.*"—BRISTOL MEDICO-CHIRURGICAL JOURNAL.
By HEATHER BIGG, F.R.C.S. Ed.
J. & A. Churchill, London.

NOW READY. Price 21s. net.
Pp. xii. + 705, with 294 Original Illustrations.
OPERATIVE MIDWIFERY.

By J. M. MUNRO KERR, M.B., C.M.Glasg.,
Fellow of the Faculty of Physicians and Surgeons, Glasgow; Obstetrical Physician, Glasgow Maternity Hospital; Gynæcologist, Western Infirmary; President of the Glasgow Obstetrical and Gynæcological Society; late Assistant to the Regius Professor of Midwifery, Glasgow University.

Baillière, Tindall & Cox,
8, Henrietta-street, Covent Garden, London, W.C.

BY C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S., Senior Surgeon to the London Hospital; late Examiner in Surgery at the Universities of Oxford and Cambridge.
ENLARGEMENT of the PROSTATE. Third Edition. Price 6s.
INFLAMMATION of the BLADDER and URINARY FEVER. Price 5s.
London: H. K. Lewis, 136, Gower-street.
WHEN to OPERATE in INFLAMMATION of the APPENDIX. Third Edition now ready. Price 2s. 6d.
THE SURGICAL TREATMENT of GASTRIC ULCER. Price 2s. 6d.
London: J. Bale & Danielsson, Ltd., 83-89, Gt. Titchfield-street.

BONNEY'S
PULMONARY TUBERCULOSIS.
A NEW WORK—JUST ISSUED.
DESIGNED SPECIALLY FOR THE PRACTITIONER.

See Saunders' Advertisement on Page 3.

THE FOOD FACTOR in DISEASE. Including the Pathology and Treatment of Bilious Attacks, the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, &c.), Gout, High Blood-pressure, &c. By FRANCIS HARE, M.D., Consulting Physician, Brisbane Hospital. For abstract see THE LANCET review—Feb. 17th, 1906, pp. 453 to 455.—Longmans, Green & Co. In two volumes. Price 30s. net.

By W. McADAM ECCLES, M.S., F.R.C.S.
HERNIA. Third Edition, 1908. Price 7/6 net.
121 Plates and other Illustrations.

THE IMPERFECTLY DESCENDED TESTIS.
Embodying the JACKSONIAN PRIZE ESSAY. Price 7s. 6d. net.
41 Plates and 76 Figures.
London: Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

GOUT: Its Pathology, Forms, Diagnosis, and Treatment.
By ARTHUR P. LUFF, M.D., B.Sc., F.R.C.P., Physician to St. Mary's Hospital.
Third Edition, Revised and Enlarged. 10s. 6d. net.
Cassell & Co., Ltd., London, and all Booksellers.

By W. ARBUTHNOT LANE, M.S.
OPERATIVE TREATMENT of FRACTURES
Demy 4to. 7s. 6d.

THE OPERATIVE TREATMENT of CHRONIC CONSTIPATION.
Uniform with above. 2s. 6d.

CLEFT PALATE and HARE LIP.
Uniform with above. 5s.

The Medical Publishing Company, Ltd., 22½, Bartholomew Close, E.C.

DR. HUTCHISON'S NEW BOOK.
APPLIED PHYSIOLOGY.
A HANDBOOK FOR STUDENTS OF MEDICINE.
By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital, and Assistant Physician to the Hospital for Sick Children. Author of "Food and the Principles of Dietetics," &c.
Crown 8vo. 7s. 6d. net.
London: Edward Arnold, 41 and 43, Maddox-street, W.

Just Published.
DR. HARRY CAMPBELL'S
ON TREATMENT.
5s. net.
THE LANCET.—"It is quite refreshing to find such original ideas on a subject so widely written upon as therapeutics. ..... There is a quality about Dr. Campbell's writing that is very attractive. ..... We believe it will obtain a popularity which it thoroughly deserves."
BRITISH MEDICAL JOURNAL.—"No medical man will read it without a feeling of refreshment and real gain ..... abounds in that higher power of common sense which may properly be called wisdom."
BRITISH JOURNAL OF TUBERCULOSIS.—"It consists of a series of essays interesting in subject, graceful in form, and often marked by a piquant humour. Practitioners of all ages will find abundant material for serious contemplation and no little of practical service in these most attractive pages."
BRISTOL MEDICO-CHIRURGICAL JOURNAL.—"The book is full of sound teaching and is so interesting that it may well take precedence over the popular novel of the day."
Baillière, Tindall & Cox.

Re: BROMURAL

(α-Monobrom-isovalerianyl-urea.)

Though BROMURAL creates a quiet state of the nerves, whereby the necessary restful sleep is attained, it cannot be given in lieu of the direct and prompt-acting hypnotics, but simply as a harmless

POWERFUL NERVE SEDATIVE

As such its action supersedes many times that of the Bromides without showing the slightest injurious by- or after-effects. It is especially efficacious in all forms of nervous excitability and insomnia associated with mental overwork, hysteria, nervous dyspepsia. It is quickly eliminated from the body, and 5–10 grains might therefore be given several times during the day.

KNOLL & CO., 8, HARP LANE, LONDON, E.C.

GAYMERS' CYDER.

WM. GAYMER & SON, Ltd., the Oldest Firm of English Cyderists,

Beg to call the attention of Medical Men to their product, certified by THE LANCET and other high medical authorities for wholesomeness and purity. They will be pleased to send an assorted sample case (free and carriage paid) of their high-class Cyders to any member of the Medical Profession on receipt of professional card. Correspondence invited.

Head Office and Works: ATTLEBORO', NORFOLK.

London Stores: Arch 23, G.E.Ry., Bishopsgate Goods Station, E.

To H.M. The King.

For Infantile or Summer Diarrhœa

In cases of ordinary Infantile or Summer Diarrhœa, Cyllin Syrup may be administered with uniformly beneficial results.

Cyllin Syrup

is a palatable form of Cyllin specially prepared for use where indicated in such cases. The dose is:—

For Infants ... 5 to 10 minims.
For Adults ... 10 to 60 „

In severe cases larger doses may safely be administered.

CYLLIN SYRUP in 2 oz. bottles ... 1/6 each.
In special 12 oz. bottles ... ... 7/6 each.

Cyllin is also put up in capsule form (palatinoids). See report by Dr. B—— on the use of Cyllin in Intestinal Antisepsis. Copy sent, postage paid, on applying to

Jeyes' Sanitary Compounds Co., Ltd.,
64, CANNON STREET, LONDON, E.C.

A Clinical Lecture
ON
CERTAIN ANEURYSMS OF CEREBRAL VESSELS.

Delivered at University College Hospital, London, on May 12th, 1908,

BY JOHN ROSE BRADFORD, M.D. LOND., F.R.S.,
PHYSICIAN TO THE HOSPITAL.

GENTLEMEN,—There has recently been in the hospital what I venture to think is rather a typical case of aneurysm of a vessel of the brain, so I thought it would be a good opportunity to draw your attention to the clinical picture which is presented at any rate by some of these cases. In the first place, these conditions are not very rare. I cannot give you a statistical statement with reference to their incidence but will merely say that the specimens on the table show you that they are not very rare, and five of these cases are those which have come under my own observation in a not very large number of years. There are eight specimens here and there are many more in the museum, which I have not brought over because they do not exemplify any particular point. Quite a number of instances occur in private practice, so really the condition is not one simply of interest from the point of view of a rare and obscure diagnosis, though, after all, perhaps that is the main interest of the condition, because it is not one which admits of any satisfactory treatment, neither is it one in which you can modify the course of the illness to any marked degree. So one must confess that the main interest of the condition lies in its accurate diagnosis.

The frequency of aneurysm of the cerebral vessels is considerable, when you contrast aneurysms affecting vessels of similar size in other parts of the body. If you think for a moment, you will realise that one sees many cases of thoracic aneurysm; one sees a few cases of aneurysm of the big vessels of the limbs; but if you put those two kinds aside, you rarely see any other aneurysms. It is a rarity to see an aneurysm of a vessel of such size as the radial, for example, except in the case of cerebral vessels. So there is a very undue incidence of aneurysm involving the cerebral vessels, and I ought to say at once that I am only using the word aneurysm in the sense of gross tangible aneurysm and not in the sense of miliary aneurysms which, of course, lie at the root of what is called cerebral hæmorrhage. I use the term "cerebral aneurysm" simply to describe an aneurysm which is gross and obvious to the naked eye and does not require any special methods of demonstration to show it. There is therefore in the case of the cerebral vessels an undue frequency of aneurysms of this kind involving relatively small-sized vessels. It is a very interesting problem the solution of which, so far as I know, is not at present known; that is to say, why these aneurysms are so relatively common in the case of cerebral vessels. The cerebral vessels are peculiar anatomically, of course, in the thinness of their coats owing to the absence of any considerable amount of fibrous tissue. They are peculiar in their mode of support; they run in very large lymph channels. They are also peculiar—which is perhaps a more important point than the anatomical consideration—in their physiological relationships. That is a thing which has been but little studied with reference to high tension and also with reference to the incidence of aneurysm. If you take the vessels which have been studied mostly by physiologists—namely, the vessels of the abdominal area, which are noted for their muscularity and for their innervation—you will find that aneurysm is rare in that situation; that is to say, in any medium-sized vessels, any form of aneurysm except of the abdominal aorta or of the great branches as they spring from it, or of the renal vessels, is extremely rare, though not unknown. One of the patients, for example, from whom one of these specimens was obtained had an aneurysm also of one of the branches of the superior mesenteric artery. But such a thing is, as I have already told you, exceedingly rare, and one cannot help thinking sometimes that the incidence of aneurysm of the cerebral vessels must be linked to the differences in the physiology of the cerebral circulation as compared with such a circulation as that of the viscera. You see, the cerebral arteries are engorged passively whenever the tension rises in the systemic vessels. You cannot, by physiological methods, produce to a certainty any active constriction of the cerebral vessels if you produce at the same time a general constriction. Any nerve stimulation which leads to heightened tension and to constriction of the vessels of the abdominal area leads to dilatation of the cerebral vessels; they are passively distended as the result of the increased aortic pressure which is transmitted to them through the column of blood. And although nerves have been described by histologists as being present on the vessels of the brain and in the pia mater, still nobody has yet succeeded in obtaining unequivocal evidence of active vaso-motor control over the cerebral circulation.

It is rather a curious thing that aneurysms are relatively rare in those vessels where there is this active nervous influence, and that they are common in the big vessels, where of course vaso-motor mechanism has very little play, and they are common in the cerebral vessels. I think there is a good deal which might be done from the point of view of atheroma, and also perhaps from the point of view of aneurysm, with regard to the relation of the distribution of the disease to the nerve-supply. Another striking instance of the same sort of fact is sometimes seen in cases of widespread arterial sclerosis, where the vessels in the body generally are little more than calcified tubes. Such a description is no exaggeration and yet the vessels of the brain may be like those of an infant, perfectly normal and soft. One has seen that often in old people who have been the subjects of widespread calcification. It is very difficult to think that differences in distribution like that can be dependent simply on mechanical causes. The cerebral circulation at any rate is peculiar; the cerebral vessels are peculiar anatomically and physiologically, and one cannot help sometimes correlating that with the relative frequency of incidence of aneurysmal disease.

To pass on to the subject matter of the lecture, the vessels at the base of the brain most commonly affected by aneurysm are, first and foremost, the middle cerebral; secondly, the basilar (I am mentioning them in the order of the frequency of their involvement); thirdly, the internal carotid; and fourthly, the anterior cerebral. The other vessels, the anterior communicating, the posterior communicating, the posterior cerebral, and the superior cerebellar, are so infrequently affected that their involvement is not a matter of much practical clinical moment. The middle cerebral heads the list but the basilar runs it very close; there is not a difference of more than 4 or 5 per cent., I think, in the incidence of the disease in the two vessels, but in the most extensive statistics which have been collected the middle cerebral heads the list. The aneurysms are somewhat peculiar in the fact that they are very commonly saccular. They are very rarely false aneurysms or interstitial aneurysms or dissecting aneurysms; sometimes they are fusiform; interstitial aneurysms or dissecting aneurysms are almost unknown. Another striking feature, which is very well illustrated in this case, is that they have extraordinarily thin walls. The wall of this aneurysm, for example, is so thin that it might, unless it had been carefully dissected, have been mistaken for pia mater. Another peculiarity is that when you consider their size they are very prone to be full of blood clot. This specimen exemplifies that; it is full of laminated clot, and you will see the same thing in some of the other specimens, too, and in one the aneurysm has not ruptured and the swelling is absolutely solid. They are, however, especially remarkable for the thinness of their walls, and perhaps this again can be correlated with the absence of any marked amount of fibrous tissue in the cerebral vessels compared with some vessels in which aneurysms are developed elsewhere. As regards the size of these aneurysms, they vary enormously, of course; some of them are no larger than a large pin's head, while there are others almost as big as a walnut. There is one specimen in the museum which is almost as big as a walnut and which has not ruptured. But usually you may say that these aneurysms at the base of the brain are of about the size of a pea, rarely that of a cherry. They do not, of course, always rupture, any more than aneurysms in any

situation always rupture, but when they do rupture they lead to rather striking post-mortem appearances. Those of you who saw the post-mortem examination of this case will remember the appearance. And their peculiarity lies in this: that although these aneurysms are only covered by a very delicate membrane, in the majority of cases the pia mater is not ruptured and the blood is extravasated between the membrane and the surface of the brain, and the remains of that you can still see here. Not uncommonly the big vessels of the base, the basilar or some other big vessel, is imbedded in a blood-clot half an inch thick. This blood is extravasated all over the base, from the optic chiasma backwards, and then it passes up the side of the pons, the side of the medulla, and so gets into the fourth ventricle, and in that way it passes through the iter through the third ventricle, and so into the lateral ventricles. Those of you who saw the necropsy on this case will remember that when the brain was sliced open the ventricles were full of blood, as full as they very well could be. It is difficult at first to believe that all that hæmorrhage in the interior of the ventricles can be derived from hæmorrhage on the surface of the base of the brain. This specimen has been carefully dissected by Mr. T. W. P. Lawrence, and he has shown that there is no other rupture and that the whole of the blood in the ventricles has been derived in the way I have described—namely, by passing up the side of the pons, up the side of the medulla, and so getting into the fourth ventricle and so on. It is very extraordinary, when you consider the pressure inside these vessels, and when you consider that they are only covered by a thin layer of pia mater, that with the rupture of an aneurysm the pia mater does not usually rupture, and that there is no blood extravasated into the subdural space. Subdural extravasation is a most exceptional thing. I have never seen it in the instances of aneurysm of this kind which have fallen under my notice.

There is another form of rupture which may occur, and that is the aneurysm may become adherent to the cerebral substance and give rise to intracerebral hæmorrhage which bursts into the brain matter and not externally. You will understand that I am talking all the time of aneurysms of the vessels at the base of the brain. But, of course, these aneurysms do not by any means always rupture. Sometimes they give rise to other effects. They may reach such a size as to press on the cerebral structures and cause cerebral softening, and not bring about death by rupture. A few words with reference to the incidence of these aneurysms. They may occur almost at any time of life up to extreme old age, but the bulk of them occur in the first half of life, before the fortieth year, and a very considerable proportion of them occur between the twentieth and the thirtieth year. They have been known to occur in childhood, and in persons between 20 and 30 years of age they are fairly common comparatively. There are a few isolated instances on record where the disease has occurred even before the tenth year of life. But the main interest in the clinical picture which I want to draw lies in the group of cases where this condition occurs in adult life from 20 to 30 years of age. In the case of people over 40 years of age there is not so much interest in the etiology or clinical course of aneurysm as there is in the occurrence of the disease in those who are younger. I will not waste your time in discussing the pathology of the condition, but will simply draw your attention to the fundamental point that aneurysm is the result of local disease of a vessel wall; that lies at the root of the pathology of the disease; it is the striking difference between aneurysm and arteriosclerosis. It is a manifestation of a local disease, often of a patchy disease. The local disease is, in a very large proportion of cases, atheroma, and is atheroma of no doubt syphilitic origin, and we think that in the case of cerebral aneurysms their causation by syphilis is, if anything, a more definite characteristic than it is even in such aneurysms as those of the aorta. In all the cases here where a history was obtainable there was no difficulty in tracing the syphilitic infection. So much is that the case that you might make a more general statement and say that in aneurysms involving the large vessels in young persons the probability of the condition being syphilitic is great. But bear in mind that in the case of the cerebral vessels, great as is the part played by syphilis, there is another factor which does not play any considerable part in the production of aneurysms elsewhere—that is to say, the factor of embolism. You never think of embolism as a possible cause of aneurysm of the aorta or the more familiar forms of aneurysms with which we are concerned. But in the case of the cerebral vessels there is no question of aneurysm being sometimes dependent on embolism. And you must bear in mind that the embolism may be not only that produced by such malignant and septic processes as ulcerative or malignant endocarditis, but also that a vessel wall may be damaged by a more benign embolism than that.

You must, therefore, bear in mind that not only may the physical signs of the condition which causes embolism pass away but that it is not too far-fetched to suppose that sometimes the condition itself may pass away. A patient may get embolism from the detachment of blood clot from the interior of the heart, for example, but it does not necessarily mean the presence of valvular disease, and I do not know that one would be justified in saying that a condition like that is always persistent. My point is that a patient may die from cerebral aneurysm which may have resulted from embolism, but that at the time of his death you may not be able to find any gross evidence of its embolic origin. So that great as is the part played by syphilis in the production of cerebral aneurysm one cannot say that if a person has cerebral aneurysm it is proof positive that he has had syphilis. In my own not very extensive experience I have seen fatal cerebral aneurysm in quite young people in whom there is not the smallest reason for supposing there was any syphilitic infection. I have one case particularly in my mind, that of a young girl 17 years of age, who had cerebral aneurysm, and there was no cause found post mortem for an embolic source and where certainly if anything could be excluded syphilis could. So one must not be too dogmatic about the part played by syphilis, although the bulk of the cases, and perhaps all the cases on the table with one exception, are of syphilitic origin. And I want to emphasise the point that you can never gauge the state of the cerebral vessels from the state of the peripheral vessels. So the fact of the radial being diseased does not, unfortunately, give a clue as to the state of the cerebral vessels.

So much for the age incidence and the distribution of the lesion. Now we come to the clinical side of the subject, and I am afraid I must classify the cases. From the clinical standpoint one may recognise the following groups, I think First of all there are the cases that produce no symptoms at any time, and that group of cases is considerable. The patient dies from something else and afterwards cerebral aneurysm is found, as in this specimen. Here is a cerebral aneurysm of the size of a small cherry on the basilar artery at its bifurcation, and it was derived from a case of malignant endocarditis which never presented any cerebral symptoms. You may see aneurysms very much larger than that which have never produced symptoms and which are found in the course of post-mortem examination where the patient has died from some totally different disease. It is very remarkable that you can have a thing of that size pressing on the pons or medulla and yet the patient present no symptoms. The second group are those where the patient simply presents the symptoms of a cerebral hæmorrhage—that is to say, he has no symptoms until he gets cerebral apoplexy, which is fatal, and the case is merely one of very severe cerebral hæmorrhage, rapidly fatal. You can sometimes suspect these cases to be aneurysmal owing to the rapidity of the onset of the apoplectic state. Those cases are of no great clinical interest—they are merely cases of cerebral hæmorrhage.

There is a third group where the patient presents symptoms in greater or less degree of a cerebral tumour, and those cases are of some clinical interest from the point of view of trying to distinguish between a cerebral tumour and an aneurysm. I think they must be rare, although they are described in all books, because personally I have never come across one. I have never seen a patient who had aneurysm where the symptoms were at all really suggestive of a cerebral tumour—in other words, where there was any difficulty or doubt in distinguishing between these two.

The fourth group of cases is the one to which I particularly want to draw your attention and the one which is really my sole excuse for talking about the subject to-day. I think there is a fourth group of cases the particulars of which it is difficult to sum up in a few words. It is a class in which there is a definite clinical course and where you can hazard a diagnosis, as a diagnosis was hazarded in this

case. I doubt whether it is often possible, strictly speaking, to make a diagnosis, to be certain that a person has such a thing as this. But, after all, that is not the important point; the important point to you all from the point of view of your patients is to be alive to the possibility of an aneurysm being present and to directing whatever treatment you may think fit with that idea in your mind. I cannot sum these cases up in one word like one might the other cases, but they are cases in which the main phenomenon is that the disease runs its course in two stages. There is a period during which certain symptoms develop and lead the patient to seek advice. The symptoms such as I have seen in these cases have always been obscure and have sometimes been trivial. Then after a short duration, a few weeks perhaps, or sometimes only a few days, the second stage of the illness develops, hæmorrhage occurs, and there is then no doubt about the nature of the underlying trouble. Now these cases are infinitely more important than any of the others in the three groups which I mentioned previously. Cases in which no symptoms develop are clearly of no importance clinically. The cases which are simply those of violent cerebral hæmorrhage are also of no very great clinical importance, because it is not very likely that the gravity of such a case will be overlooked. The cases in which the symptoms of tumour are mimicked are of no great importance, because there again a competent man is not likely to overlook the existence of serious disease. But these other cases in the fourth group are precisely those that are liable to be overlooked. The patient is supposed to have very little the matter with him and then suddenly he falls back dead in the course of the development of symptoms which have lasted only a few minutes, and you may incur grave discredit from having made light of the previous symptoms which receive their full explanation at the time of the fatal seizure.

With regard to describing the illness in these cases, it is rather difficult, because the symptoms vary so much. But usually the illness has been short and is ushered in with a seizure of some kind; I cannot put it more definitely than that. The patient is thought to have had a fit of some kind; sometimes he is simply said to have fainted. A very little examination reveals at once that the fit has been peculiar, that it has not been an ordinary fainting fit, nor has it been an ordinary epileptic fit. It has very often been a fit of sudden tonic rigidity, with very likely one of the most characteristic features of all, rigidity of the neck. But at any rate the illness is ushered in with a seizure and with either complete or partial loss of consciousness, usually, I think, complete. In the cases which I have seen the patient has suddenly lost consciousness and he has been supposed to have had a fit; also, he nearly always vomits in this attack, and this vomiting is the disturbing element to the practitioner, because the case is so often read the other way about. He is supposed to have had a vomiting attack on account of some trivial cause, and the other phenomena which have subsequently developed have been attributed to the exhaustion and the vomiting or to the poisoning which has been supposed to cause the vomiting. There was a case that I recorded 14 years ago of a porter (one of the hospital porters) who died from this disease, and here is the aneurysm. The history was as follows. During a fortnight he had complained of slight occipital pain and some stiffness of the muscles at the back of the neck; this he attributed to exposure to a draught. He was sufficiently well to do his work as hospital porter on Feb. 2nd. On the next day he had for breakfast some bacon which he thought rancid and subsequently vomited. He went to bed and felt better. Now we come to the important point. Towards evening his wife said that he looked at her in a strange way and she thought that he must have had a fit. He vomited three times in the course of the evening. That is the kind of history which you get with these cases: that there has been a seizure of a vague kind accompanied with some loss of consciousness and frequently with vomiting. Not uncommonly these people have in addition intense giddiness which is an important symptom, and they also not uncommonly have noises in the head. In the case which I have just quoted the man had had noises in the head for six months previously. These noises were probably associated with the local disease of the vessel. But, and I cannot repeat it too often, the essential point is the seizure. Subsequently to the seizure the patient recovers consciousness and usually manifests a paralytic condition of slight degree—that is to say, he feels weak, and though he is not definitely paralysed he is unable to walk and this again he very likely attributes to the exhaustion caused by the vomiting which he looks upon as due to indigestion. If you examine the patient at this time you will often find that he has no knee-jerks. This fatal case which occurred a few days ago illustrated that. The patient was brought here with weakness of the extremities, there was no actual palsy, and he had no knee-jerks. It is common in many infra-tentorial diseases to have absent knee-jerks and it is one of those little straws in the physical examination of a patient which should make you extremely cautious about doubting the presence of any serious organic disease. Most of these patients a day or two after the attack which I have described are apparently well and there is very little to be made out when you examine them, perhaps nothing except a little stiffness of the neck and a little generalised weakness and possibly absent knee-jerks; therefore great stress should be laid on that physical sign. Of course, they may have other phenomena. The aneurysm may be in such a position as to press on some cranial nerve or on many cranial nerves. The third nerve, for example, is not uncommonly involved and that again is one of the reasons which should make you very cautious about giving a diagnosis in doubtful cases of ptosis. Such a severe lesion as aneurysm may be a cause of ptosis and anyone who has had much experience of ptosis as a physical sign knows how difficult it is to diagnose the cause of any given case of ptosis. The sixth and seventh nerves, and in fact all the nerves coming from the pons, are prone to be involved. The hypoglossal has been known to be involved, but very rarely. The other nerves—the oculo-motor nerves and the seventh nerve—are most likely to be affected. Then, inasmuch as these aneurysms which we are discussing are basal in position, they may press on the pons and the medulla in such a fashion as to interfere with their function and to cause generalised weakness.

There are other curious phenomena which are apparently correlated with this position of the aneurysm. For example, great irregularity of the heart has been described and in the case of the hospital porter mentioned above, who was seen by an extremely careful clinical observer at the time of his first illness, this physician thought it was a clear case of ptomaine poisoning on account of the vomiting and the very great cardiac irregularity and cardiac enfeeblement which were present. It was, of course, easy to read it afterwards and to get the correct interpretation but very difficult at the time. Retention of the urine is another curious and apparently trivial symptom which these patients may have. One patient was brought into the hospital because he had retention of urine, not because he had any head symptoms. There was no suspicion of his having a head lesion, but he came because he had not passed urine and it was not very convenient to draw off his urine where he lived. So in addition to symptoms of generalised weakness in the extremities there are such conditions as cardiac irregularity and (as I should have mentioned earlier) respiratory irregularity and disturbance of the sphincters. Our patient a few days ago had a curious symptom the significance of which I am sorry to say I failed at the bedside to realise, but which I ought to have recognised—namely, loss of sight in one eye. You will find that that has been described in not a few cases. There are, I think, two other specimens showing aneurysms in a very similar position to the one which it has occupied in this case, where the optic nerve was pressed on. I ought now to describe the symptoms which this patient had. On April 27th, when at work, he suddenly had a very bad headache, and the headache was vertical. He vomited and then he went home. After he got home he became unconscious and remained so for 20 minutes and was stiff and rigid. There, you see, was the seizure which I was talking about. Subsequently to that he vomited on several occasions for three days, and on recovery of consciousness he experienced a numb feeling in the arms and legs and at the back of the head, but he could move the arms and legs. Subsequently he noticed loss of sight in one eye.

You could not have a better illustration of the apparently trivial character of some of the manifestations when they are really due to a very serious cause. After attacks of this kind the symptoms subside and there is nothing much to be made out. And then suddenly, after a varying interval, not generally a long interval, the fatal rupture takes place and the case is then simply one of severe

apoplexy. This patient for a fortnight presented no fresh symptoms, then one day he wished to pass a motion, and subsequently to that, or whilst in the act of passing it, he called out to the sister, and was dead in a few minutes; very probably the rupture occurred during the straining at stool. Other patients have suddenly sat up in bed, called out, and fallen back unconscious and died. But in a number of the cases death does not occur quite as rapidly as that. The patients become profoundly unconscious, respiration becomes more and more irregular, and finally it ceases, and yet the pulse goes on beating vigorously. I have met with instances where artificial respiration has been carried on for three or four hours in these cases, the heart beat going on all the time. I think, however, that they are really quite hopeless. It has been suggested that trephining might be done to relieve the tension while artificial respiration was being performed. These cases run a slightly different course from the ordinary cases of cerebral hæmorrhage, in the extraordinary way in which the respiration is arrested and the pulse continues. That is the clinical picture, then, of this group of cases. As I said at the beginning, I think they form a very definite group of cases, characterised by these phenomena: (1) that there is an early seizure followed by (2) a period in which there are no marked symptoms of any kind, perhaps with the exception of some stiffness of the neck, and (3) subsequently there is a fatal seizure.

In some of these cases, as in the last one, optic neuritis is present. I am told that this last patient had optic neuritis in the left eye. Optic neuritis has been described, of course, in a considerable number of cases of cerebral aneurysm. Those are the points of main interest about these cases, and the only thing in addition which I will say about this particular one is that we got as far as hazarding a diagnosis of basilar aneurysm on account of the curious seizure which he had. But at the bedside I could not myself account for his sudden loss of sight; I could not correlate the general weakness of his four limbs with the loss of sight in the right eye. That was due to lack of knowledge on the subject, because it is one of the features which have been described a considerable number of times, and there are two or three specimens in the museum which illustrate pressure on the optic nerve. But the curious thing in this case—showing how different the real thing in clinical medicine is from the artificial things which are sometimes detailed for teaching purposes—is that this man's aneurysm came from his left anterior cerebral, and yet the optic nerve that was involved was that of the right eye. The aneurysm crosses the middle line and apparently presses on the right optic nerve. I fear that you cannot see that in the specimen now, because the part of the optic nerve which was probably pressed on by the aneurysm has been left in the body.

What is the explanation of the two seizures which occur in these cases? One can only hazard a guess, but I think that probably first of all a slight rupture occurs and then a big and fatal rupture; the first seizure is due to a slight rupture and the fatal seizure is due to a second rupture. In this case the brain afforded some evidence of that, and it is the first time I have seen evidence of it, in the fact that all round the optic nerve and on the surface of the base of the brain there was a considerable amount of staining which might have been due to old blood clot which had been absorbed and the recent blood clot covered the whole thing over. In many of these cases the blood clot formed by the final rupture is so extensive and firm that it is only with the greatest difficulty you can find that there actually is aneurysm, only by washing away the clot for a long time that you can find the seat of the hæmorrhage. Another curious thing about this case is that this aneurysm on the anterior cerebral had, on on the one hand, pressed into the brain, although it does not look a big aneurysm, and that it was projecting into the anterior extremity of the lateral ventricle. On opening the ventricle and looking down you can see the sac at its anterior extremity not ruptured, the blood clot in it showing through. So this aneurysm, although it had reached the ventricle, yet when it ruptured it did not rupture into the ventricle but in the way I have described—that is to say, externally, beneath the pia mater.

Those are the main points which I put before you. As regards diagnosis, I doubt very much whether you can diagnose with certainty aneurysm at the base of the brain, but at any rate you can suspect it, and that is what I wanted to bring before you, and I certainly think that the clinical picture I have tried to put before you is one which is true to the condition and is one which will enable you to suspect its existence in a patient.

Now, what is it liable to be confounded with? The condition which it is most likely to be confounded with, as far as my own experience goes, is a purely functional condition. Such a person is often supposed to be neurasthenic. Of course the cases which make the greatest impression upon one are often those where errors have been made, and I remember a case I saw once, the man being a stock-broker who had lost much money on the Stock Exchange and took to drinking. After a drinking bout he had a vague seizure such as I have described, and I saw him a few days afterwards, when there was nothing to be made out except that his extremities were rather weak and that he had some stiffness in his neck and occipital headache. It was thought by some to be obviously a case of neurasthenia; the idea that there was any organic disease was laughed at, because the man was apparently perfectly well. Three or four days after I saw him he sat up suddenly in bed and called out, and then fell back dead. He had one of these aneurysms. That is a most serious mistake, and it is one I want to warn you against making, because occipital headache, extending down the back, stiffness of the neck, and numbness of the extremities are sometimes features of neurasthenia, and therefore you might make the mistake. The absent knee-jerks may help you. The other errors of diagnosis are not important. It is not a serious matter to confound aneurysm with tumour or with meningitis or with any other fatal disease. The serious mistake is to confound the disease with a functional one, and that is what you are extremely prone to do, owing to the fact that when you see the patient the probability is that you will not find any very obvious signs, and such signs as may be present require careful investigation for their detection.

AN EXTENSIVE ENTERECTOMY FOR GANGRENE.

BY ARTHUR E. J. BARKER, F.R.C.S. ENG.,
PROFESSOR OF SURGERY AT UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL AND SURGEON TO THE HOSPITAL; CONSULTING SURGEON TO THE QUEEN ALEXANDRA MILITARY HOSPITAL, MILLBANK, S.W.

THE following case is one which has had many points of deep interest to myself in its history and treatment and may be as encouraging to others as it has been to me. It illustrates, besides, several of the good features of spinal analgesia in the clearest way. I have a strong conviction that this method of allaying pain was far more suitable to the case in hand than would have been any other general anæsthetic, and that by employing it some of the great risks commonly run in such operations were avoided.

The patient, a married woman, aged 47 years, who had had no children, had three years ago an attack of inflammation of the right ovary but no other illness. There had, however, been chronic constipation. On Sunday, March 29th last, she had tinned salmon at breakfast and meat-pie at early dinner. At about 2.30 P.M. she was seized with violent pain in the abdomen. During the afternoon she vomited once or twice and brought up undigested food. She had had a small, hard motion on Sunday morning. Confection of senna was taken on Sunday afternoon subsequently to the onset of the pain. The patient was seen at about 9 P.M. on Sunday evening by Dr. J. A. Belcher of Herne Hill and was then in great pain. The abdomen was flaccid but tender on deep pressure in the right iliac fossa. The pulse was 60 and of full volume. The temperature was normal. She was given chlorodyne, 20 minims every four hours. She was seen again by Dr. Belcher at 11 P.M. when the pain was still unrelieved. A quarter of a grain of morphine was given hypodermically. On Monday morning the patient said that she felt better and had had some sleep. The expression was, however, bad and the hands and face were cyanosed. The pulse was small at 130. The temperature was still normal. The abdomen was now much distended and very tender and there was dulness in the right iliac region. The case was regarded as probably one of appendicitis with perforation and I was sent for.

I first saw the patient at 12.30 P.M. on Monday, 22 hours after the onset of the illness. She was semi-recumbent in bed, cyanosed in face and hands, and looking very ill. At first I could feel no pulse at either wrist but eventually detected a very slight flicker at the right which could not be accurately counted owing to feebleness and apparent intermission. No pulse at all could be made out on the left. The abdomen was greatly distended and tense, mostly in the middle line below the umbilicus, but the distension extended into the right iliac fossa. Here there was distinct loss of resonance, the left and upper part of the abdomen being abnormally tympanic. There was such extreme tenderness that any further examination was impossible. The case did not appear to me altogether like one of appendicitis for several reasons, and rather seemed to suggest an internal strangulation. Preparations were at once made for operation, but under great difficulties. The house was partly dismantled as the inmates were moving. The domestic service was inadequate. But with the help of a nurse hastily summoned we arranged an empty room and secured an operating table and cleansed the patient's abdominal wall. I was glad that with all other necessaries for operation the requisites for spinal analgesia were in my bag as we were so short-handed and the condition of the patient was so extremely desperate as to require an immediate operation or none at all. I punctured in the third lumbar space and injected 5 centigrammes of stovaine and glucose. Analgesia up to the mammæ was rapid and perfect. The muscles of the abdomen became slack and painless in five minutes or less and the patient was much relieved. We could now feel a large swelling nearly in the middle line but more to the right, which was tense and defined and moveable from side to side. It was of about the size of a 12 year old child's head. This determined me to open in the middle line. When this was done from one to two pints of stinking dark turbid fluid gushed out and immediately after I saw black coils of small intestine. These formed a large bundle strangled below by a thick adhesion round the mesentery. The whole bundle was lifted out on the abdominal wall and was seen and smelt to be gangrenous. There appeared to be from 4 to 6 feet of it strangled. As a matter of fact after removal it measured 4 feet 9 inches. In such conditions there was nothing for it but complete excision of the whole bundle of coils. I therefore laid the healthy proximal and distal parts side by side and made a lateral anastomosis, as the distension of the first and contraction of the second forbade end-to-end junction. I then cut away the gangrenous coils in one mass and closed the ends divided and the gap in the mesentery. The abdomen was then mopped of the remaining foul fluid with sterile gauze and closed without any drainage by stitches passing through all coats of the abdominal wall.

The operation lasted one hour and ten minutes, during which the patient felt no pain or sensation except relief of previous distress. Before I left the house the pulse had recovered and was of fair volume at 130. She expressed herself as much relieved but very thirsty. She was given a cup of tea which she at once brought up. This was the only vomiting which occurred up to the end of the case. There was no headache.

The course of convalescence may be easily summarised. There was no shock after the operation. The pulse and general condition steadily improved; the temperature, taken four-hourly, kept between 100° and 101° F. for 11 days. On the twelfth day it rose to 102° and then steadily fell to normal. The last rise was probably due to a stitch abscess which afforded a little discharge. The wound was dressed on the thirteenth day and was found soundly healed. The stitches were then removed and all came out dry except the one mentioned. The bowels acted daily after the third day and food was well taken. There were no complications of any kind.

This case seems to deserve some special notice for several reasons. The onset was very like that of an attack of appendicitis accompanied by perforation, and the rapid aggravation of the symptoms, both general and local, looked very like the supervention of general peritonitis. At the same time the *absence* of vomiting as the abdomen swelled and became tender while the pulse rapidly rose raised a doubt, as did also the normal temperature. That there was some particularly severe intra-abdominal lesion was clear as the tenderness and swelling were rapidly increasing and the pulse-rate was rising and its tension falling until it had almost gone altogether. The patient's aspect also suggested a very severe lesion, for the general cyanosis was most marked in the face and hands. I suggested to Dr. Belcher that we should probably find an internal strangulation. But it was not until the abdominal walls had become quite flaccid under the spinal analgesia that it became perfectly clear that we had not an appendicitis case before us. This relaxation was as complete as could possibly be, and one could feel the rounded well-defined mass almost in the middle line which could be moved from side to side like an ovarian cyst, and one thought of a twisted ovarian pedicle as a possible cause. This was negatived by the flatness and flaccidity of the abdomen at the onset. But though a strangulation from band was suspected I was not at all prepared for the advanced condition of gangrene which was at once found when the abdomen was opened, considering that the strangulation must have taken place within 22 hours—i.e., between 2.30 P.M. after a solid dinner and 12.30 P.M. the next day, when I saw the patient practically pulseless. The gut was perfectly black and stinking, as was also the large amount of gangrenous fluid which gushed out of the abdomen. The bundle of gut (now in our museum) tied at both ends filled a large pudding bowl. It contained dark fœtid blood under great tension, so that the bundle gave the impression of one tense cyst when felt through the abdominal wall.

As to the enterectomy itself it was done in the way I always deal with similar cases, of which I have described several in THE LANCET. I should have resected a larger amount of the proximal bowel but for two reasons. First, I did not know the length of the gangrenous gut in the bundle constricted. It seemed somewhat about 6 feet, but I could not measure it *in situ*, and it might have been more—it was actually 4 feet 9 inches—and I feared to sacrifice too much of the small intestine. Secondly, the lesion had only recently taken place and one hoped that the proximal part was still unaffected by those very grave changes which ultimately take place in all bowel above the strangulated point. To the eye the proximal part was only slightly distended, and to the touch it was healthy and free from œdema and when opened the mucous membrane looked normal. I therefore used a spot only a few inches above the constriction for the junction with the distal portion which structurally seemed unchanged. Nevertheless, I was uneasy for some days as to whether I had gone high enough up the proximal portion to secure sound tissue for the junction. The result, however, proves that the tissue was sound enough to go through all the processes of repair. The distal portion for about a foot or so below the constriction presented a very interesting appearance such as I have never before seen or known to be described. It was very irregularly constricted, portions being contracted and almost cord-like and portions dilated. Some unusual nerve phenomena must have been present, probably due to pressure by the band; otherwise it seemed to be perfectly normal in texture. No attempt was made to resect the bundle of intestine until the anastomosis had been effected. It simply lay outside the abdomen until the time came to cut it away and to suture the gap in the mesentery. In taking this course no time was lost and extra soiling of the peritoneum was avoided. Nor was any attempt made to cleanse thoroughly the peritoneal cavity before the anastomosis except that by pressure as much foul fluid was squeezed out as possible and the bowels were protected by gauze. When the enterectomy was complete the cavity was swabbed out with gauze as completely as possible, but could only, of course, be regarded as relatively clean. Nevertheless, both the intestinal wounds and the incision in the abdominal wall healed soundly. The stitches in the latter on the thirteenth day came out dry with the exception of one. This supports the view that the peritoneum is able to dispose of much toxic matter if not too severely injured either by the original lesion or by swabbing and irrigation. The latter I very rarely resort to now and mopping is carried out with dry aseptic gauze in the gentlest manner, with due regard to possible pools in the flanks and pelvis, to which fluid would gravitate. In this case the foul fluid appeared to come from all parts of the peritoneal cavity.

As to the anæsthesia, it was perfect from the patient's and

surgeon's point of view. All pain vanished within a couple of minutes of the spinal injection and the paralysis of motion followed rapidly. The abdominal walls were relaxed and absolutely still, which greatly facilitated operation. There was no increase of shock from the anæsthetic or the operation, and before the patient was off the table, on which she was left for a couple of hours, the pulse was good. Nor was there any consecutive shock later. This is so frequently the case in severe cases operated on under spinal analgesia as strongly to encourage us to employ this method. And although I regard this case as the most striking illustration of its good points that I have seen in over a hundred abdominal operations under spinal analgesia it does not stand alone. Of course the severe shock before the operation due to the acute strangulation of so large a portion of the small intestine might be expected to disappear to a great extent with the release of the latter, and the improvement after this operation was doubtless in part due to this. But it may safely be said that here the form of anæsthesia employed did not add to this shock.

In conclusion, it must not be forgotten that the early diagnosis of the gravity of the condition made by Dr. Belcher and his prompt action contributed, perhaps, more than any other factor in the saving of this patient's life. A letter from Dr. Belcher of a week or two ago describes the patient as now quite well in every respect at the end of six months.

Harley-street, W.

EXOPHTHALMIC GOITRE: A DISCUSSION ON ITS PATHOLOGY AND TREATMENT.[1]

BY A. GORDON GULLAN, M.D. LOND., M.R.C.P. LOND., F.R.C.S. ENG.,

SENIOR PHYSICIAN TO THE LIVERPOOL STANLEY HOSPITAL AND LECTURER ON CLINICAL MEDICINE, UNIVERSITY OF LIVERPOOL.

THERE are several instructive and noticeable facts to be gathered from the etiology of exophthalmic goitre. Firstly, it mainly affects women between the ages of 16 and 40 years—i.e., at the period of sexual vitality—and is rare before puberty and after the menopause. Of 495 cases compiled by Buschan, only 15 were under the age of ten years and only 31 were over 50 years of age. Of my own cases only one, a girl, aged nine years, was affected before puberty and my oldest patient was aged 47 years. In this respect Graves's disease differs considerably from myxœdema, as that disease, though present at any age, is much more frequent before puberty in the form of cretinism and later in life after the menopause. This disease, too, like myxœdema, is rare in men—only two of my patients were males. Ord and Mackenzie give the proportion as 20 to 1, which is probably correct, though many writers give a lower ratio.

The disease may occur in members of the same family and, indeed, in several generations. Five of my cases gave a distinct history of several members of their family being affected with the malady. For instance, two patients were sisters, and their brother, who had previously died from "consumption of the bowels," was affected in the same way. This consumption of the bowels may have been the diarrhœa of Graves's disease. Another patient's maternal aunt had been similarly affected; and two other patients had sisters affected with Derbyshire neck (cystic goitre). One of these, a woman, aged 30 years, had two sisters who resembled her in feature and stature; one, aged 28 years, showed early signs of this disease; and the other, aged 33 years, had a large cystic goitre but manifested no other symptoms. I must also mention Oesterreicher's well-known case, where a woman had 10 children, eight of whom suffered from exopthalmic goitre, and one of the latter had three children similarly affected.[2]

The illness is often consequent upon fright, mental shock, worry, or prolonged mental strain; or appears to date from an acute illness such as influenza. Thus in my cases one patient dated her illness "to a fright whilst pregnant;" another "to worry over a tobacconist business;" a third "to a family worry, her husband being out of work;" and three others give "worry over family matters" as the cause. The acute symptoms in another case, a nurse, followed an operation for acute appendicitis and the development of a patch of phthisis in her right lung, but some exophthalmos had been noticed in a slight degree for some months previously. This patient's sister also suffers from marked Graves's disease. The remainder of my cases gave no definite cause for the disease and stated that it came on gradually, generally saying that one or other prominent symptom developed some time before the rest. Intense grief and profound emotional disturbance have long been recognised as the cause of an acute attack, but it appears to me that in most, if not all, the instances where worry or fright is stated as the cause, these mental conditions are really *post hoc* and not *ante hoc*. I mean that the disease was present, perhaps in a latent or mild degree, at any rate in so slight a degree that the patient was not aware of its presence, before that mental strain occurred, and then owing to the nervous temperament, which is one of the strong characteristic conditions of the disease, she succumbed to the "worry or fright" in an abnormal degree, and consequently dates the onset of her illness from that time. In the case of the nurse mentioned above, I am confident that for some time before her mental shock some degree of Graves's disease was present. Quinsy has been mentioned as an antecedent. I have seen it present in several of my cases during the illness.

We must now turn to the interesting and debateable field of the pathology of this disease. The thyroid gland from a case of exophthalmic goitre shows marked changes, the cells have become columnar instead of cubical, the vesicles stellate instead of square or rounded, and a mucous substance instead of a colloid fills those vesicles. Mr. Walter Edmunds, after removing the greater part of the thyroid from a dog, found that the small part which he had left underwent changes of the nature of a compensatory hypertrophy, which is practically indistinguishable in its features from those I have just described.[3] These facts are strongly suggestive that the goitrous change of this disease is due *to a true hypertrophy which produces an increase of the specific secretions*. Furthermore, in support of this view is the strong similarity of exophthalmic goitre to the symptoms of thyroidism, or hyperthyroidism, produced experimentally in animals, or by over-dosage of thyroid extract in man. Mr. Edmunds has again rendered valuable aid to our knowledge of the pathology of Graves's disease by showing that if monkeys or dogs are fed with large doses of thyroid there results accelerated action of the heart, increased metabolism, loss of weight, increased action of the skin, and sometimes marked exophthalmos; indeed, all the symptoms of Graves's disease, including exophthalmos, can be produced in animals by the administration of large doses of thyroid gland. All these symptoms, with the exception perhaps of the exophthalmos, are produced in man by the excessive administration of thyroid, and are not infrequently seen when treating myxœdema. A patient of mine, a cretin, became irritable and fretful, with rapid action of the heart, raised temperature, moist warm skin, and flushing of her face when the dose of thyroid extract was raised to 12 grains per diem; all the symptoms quickly subsided on the withdrawal of that drug.

Again, in support of the contention that the disease is due to excessive activity of the thyroid (thyroidism) is the fact that the manifestations of exophthalmic goitre are the exact opposite to those of myxœdema, which disease is undoubtedly due to a deficiency of thyroid secretion (athyroidism). The low ebb of metabolism in myxœdema is clearly indicated by the infrequent low tension pulse, feeble cardiac action, mental and physical hebetude, subnormal temperature, dry swollen skin, constipation, diminution of the excretion of urea, and increase in body-weight. Whereas excessive metabolism is shown in exophthalmic goitre by the frequent raised tension pulse, accentuated action of heart, mental and physical condition active and alert, temperature inclined to be raised, moist skin, looseness of the bowels, increased excretion of urea, and loss of body weight. How the thyroid secretion modifies metabolism is still rather doubtful. It certainly has an action on bodily growth, as shown by its

[1] A paper read before the Liverpool Medical Institution on March 12th, 1908, at a discussion on Exophthalmic Goitre.

[2] Allbutt's System of Medicine, vol. iv., p. 489.

[3] Brit. Med. Jour., vol. ii., 1905, p. 1077.

effect on cretins and also on tissue changes, but whether it acts directly on the cells themselves or has a detoxicatory function—i.e., has a destructive or neutralising action on poisonous substances formed in metabolism—is still *sub judice*. In favour of the latter view, that the thyroid secretion is detoxicatory, is the experiment of Blum [4] who found that thyroidectomised dogs which were doing well on a milk diet developed symptoms of athyroidism directly they were fed on meat. This fact may mean that toxic materials are formed from meat in the intestine which under normal conditions are neutralised by the thyroid secretion or that the products of incomplete metabolism of proteids within the tissues are destroyed when the metabolism is normal but not when the metabolic thyroid secretion is absent.

There are also other experiments in support of the view that the normal function of the thyroid is detoxicatory of metabolic products. In 1894 Ballet and Enriquez, acting on this theory, injected the blood of thyroidectomised goats into patients suffering from exophthalmic goitre with beneficial results. In 1899 Burghart [5] reported three cases that improved, two markedly so, when treated in a similar way, but he did not confine himself to the use of injections, but administered a dried alcoholic extract of the blood per os. Schultes,[6] Möbius,[7] Blumenthal,[8] and others reported similar successes. Assuming that the quality of the blood is communicated to the milk, Lanz in 1894 treated two cases with milk from thyroidectomised goats. The results were so favourable that the treatment was applied to four other patients all of whom showed marked improvement and gain in weight. Serum from thyroidectomised animals has been made by various firms of chemists, antythyroidin (Möbius) by E. Merck, and thyroidectin, a reddish brown powder prepared from the blood of thyroidectomised sheep (five grains in a capsule, from 1 to 3 thrice daily) by Parke, Davis and Co., and rodagen, a dried powder made from the milk of thyroidectomised goats (dose from half a drachm to one drachm or more thrice daily) prepared by E. Merck. I shall have something further to say about these preparations at a later stage.

There is no doubt, as has already been shown, that thyroid secretion is capable of causing intoxication. Assuming, then, that the hypothesis that exophthalmic goitre is due to intoxication from hypersecretion of the thyroid gland is correct, we have still no satisfactory explanation of the cause of the hyperactivity of the thyroid. It has been suggested that it is due to degeneration changes in the cervical sympathetic, or hyperplasia following an intestinal intoxication, but the intimate relation which exists between the thyroid and the generative organs—the gland often swells at the menstrual period, involutes or atrophies at the menopause, causing myxœdema, hypertrophies at puberty or during pregnancy, causing exophthalmic goitre (this is illustrated in three cases of mine)—inclines me strongly to the view that some abnormality in the function of the generative organs may be the starting point of the thyroid derangement.

Before leaving the pathology of exophthalmic goitre I must refer to the parathyroids—small epithelial bodies which lie in close apposition to the lobes of the thyroid gland, and which if removed in dogs cause muscular twitchings, spasms, exhaustion, and death, a condition of aparathyroidea as it has been called, so that some experimenters attribute the acute nervous and muscular symptoms of total thyroidectomy to the simultaneous removal of the parathyroids, and indeed in some cases of Graves's disease the parathyroids have been found to be atrophied. Against the theory that exophthalmic goitre is due to parathyroid insufficiency the following facts have been drawn up by Wells [9]: 1. Removal of one lobe of the thyroid often causes improvement or recovery of this disease, yet with the lobe of the thyroid is generally removed the adjacent parathyroid, which would decrease the amount of parathyroid tissue and make worse any parathyroid insufficiency. 2. Therapeutic administration of parathyroid tissue or extract has had no significant effect on the disease. 3. No considerable or characteristic anatomical changes occur in the parathyroids in exophthalmic goitre, while the great majority of all cases show hypertrophic changes in the thyroid.[10] 4. The parathyroids have no particular influence on metabolism (MacCallum), while metabolic abnormalities are very marked in exophthalmic goitre.

There is one other point in the morbid anatomy of this disease to which Mackenzie directs attention—i.e., the persistence and sometimes hypertrophy of the thymus, which occurs in so many cases, that he says, "Perhaps every case of persistent thymus is one of potential or latent Graves's disease."[11]

Since 1905 I have treated all cases of exophthalmic goitre which have come under my care with either rodagen or thyroidectin. The results have been so satisfactory that a further trial is strongly encouraged. Of the following 14 cases nine were treated by rodagen: one was cured, seven were greatly improved, and one is *in statu quo*. Five cases were treated by thyroidectin: all were greatly improved, one after non-improvement with rodagen. I will summarise my cases briefly.

CASE 1.—A man, aged 26 years, showed marked symptoms. He was very nervous, restless, did not sleep well, the pulse was 120 with occasional severe attacks of tachycardia, the temperature was frequently raised above normal, he perspired freely, and the circumference of his neck was 16 inches, the right lobe of the thyroid being considerably enlarged. He was quite unfit for work. Indeed, he had all the appearance of passing into fatal toxæmia. No improvement in his condition occurred until he was placed on half-drachm doses of rodagen thrice, and later four times, a day, with immediately good effect. The pulse-rate fell from 120 to 80 per minute, the tachycardia subsided, the tremors lessened, sleep returned, and his thyroid gland gradually diminished in size, his neck becoming 14½ inches in circumference. He had had one or two slight relapses (especially when he had been without rodagen), but I saw him on Jan. 30th, 1908, and his improvement was well maintained. He was able to work, his exophthalmos was less, the pulse was 76 per minute, there was no tachycardia, tremors were barely perceptible, and the circumference of his neck was 14½ inches—i.e., one and a half inches less than when first placed on this treatment. (This case I showed at one of the clinical meetings.)

CASE 2.—A woman, aged 32 years, first came to the Stanley Hospital in 1904. She had all the symptoms and signs well marked, with a five months' history. The illness was dated to a fright during pregnancy. She was treated with rest in hospital and dilute hydrofluoric acid (1 per cent.) and belladonna internally without much benefit. In December, 1905, when she was an out-patient, I ordered her rodagen in half-drachm and later one-drachm doses thrice daily, with the result that in six months' time all her symptoms, including marked exophthalmos, had quite disappeared, and they have not returned. Nevertheless I am bound to admit that during this time she had developed a patch of phthisis in the apex of her right lung, for which she has since been treated, and, I am glad to say, fairly successfully. How much of the cure was due to rodagen and how much to the phthisis I was at first in doubt, but as I have now a patient (Case 10) under my care who is suffering from both Graves's disease and phthisis, I think we are bound to give the credit to the drug.

CASE 3.—A woman, aged 32 years. The symptoms were very definite on admission in February, 1906, exophthalmos being so evident that the lids did not cover the eyeballs. After six weeks under administration of rodagen the pulse-rate fell from being over 100 to between 80 and 90 per minute, the eyelids covered the eyes when closed, the circumference of the neck decreased three quarters of an inch, and all the other symptoms greatly improved. She also gained five pounds in weight.

CASE 4.—A woman, aged 32 years, was in the Stanley Hospital at the same time as the preceding case. The symptoms were very marked, tachycardia, sweats, and "flushings" being very troublesome. Whilst in hospital she had an attack of acute tonsillitis. With half-drachm doses of rodagen there was marked improvement, exophthalmos became less, the circumference of the neck diminished three-eighths of an inch, tachycardia and sweatings subsided. She had remained greatly improved, except

[4] Virchow's Archiv, 1900, (162), 375.
[5] Deutsche Medicinische Wochenschrift, No. 38, 1899.
[6] Münchener Medicinische Wochenschrift, No. 20, 1902.
[7] Ibid., No. 4, 1903.
[8] Burghart und Blumenthal: Therapie der Gegenwart, August, 1903.
[9] Clinical Pathology, by H. G. Wells, p. 486.
[10] MacCallum: Johns Hopkins Hospital Bulletin (16), 287.
[11] Brit. Med. Jour., vol. ii., 1905, p. 1079.

for one relapse which passed away on returning to the same treatment.

CASE 5.—A woman, aged 40 years. The usual symptoms were well-marked, there was also considerable pigmentation of the skin and some glycosuria. She did not improve under this treatment but left *in statu quo*, except for diminution in the amount of sugar passed.

CASE 6.—A girl, aged nine years. All the symptoms were present in a moderate degree, except exophthalmos. The thyroid has become softer and smaller. The circumference of her neck diminished three-quarters of an inch and accentuation and increased frequency of the heart and tremor have disappeared under administration of rodagen.

CASE 7.—A woman, aged 36 years. There was marked improvement of all the symptoms, which were very severe, under this treatment.

CASE 8.—A woman, aged 30 years, a patient of a medical friend, was greatly relieved, all her symptoms improving when placed on one-drachm doses of rodagen thrice daily. She had previously had various other kinds of treatment without any benefit.

CASE 9.—A woman, aged 42 years, the same patient as Case 5, was readmitted into hospital in November, 1907. Pigmentation and glycosuria were still present. She was ordered half a drachm of rodagen every four hours—i.e., three drachms daily—but as she did not give evidence of much improvement five grains of thyroidectin were substituted on Dec. 22nd with marked benefit.

CASE 10.—A nurse, aged 27 years, to whom I have already referred under the heading of etiology. She had all the symptoms well developed when she was ordered five grains of thyroidectin thrice daily. She has greatly improved under this treatment. Her pulse-rate has fallen from 130 to about 90 per minute, the circumference of her neck has decreased 1½ inches—i.e., from 13 inches to 11½ inches—and the nervous tremors and exophthalmos are less marked. This is the patient whose Graves's disease is complicated by phthisis.

CASE 11.—A woman, aged 25 years, whom I saw in consultation with Dr. Gerald Wallace in April, 1907, had improved so much under the administration of thyroidectin that we gave her permission, after due consideration of the circumstances, to marry, though 12 months previously that had been quite out of the question owing to the grave symptoms present. She had gained in weight and lost her nervousness, &c., under treatment. I have recently heard from Dr. Wallace that she has been married for several months and is in good health, the improvement being maintained,

CASE 12.—A woman, aged 17 years, sister of Case No. 16, always had a large thyroid. This increased considerably in size at puberty, which took place at 15 years of age, and she then developed definite symptoms of exophthalmic goitre. She has been under treatment with thyroidectin now for some months and has shown great improvement in all directions.

CASE 13.—A woman, aged 36 years, who was under the care of a medical friend for some years, manifested the classical symptoms, she gradually got worse until given rodagen one drachm thrice daily and then steadily improved.

CASE 14.—A man, aged 25 years, showed well-marked symptoms. He had improved on thyroidectin and been able to return to work. No other treatment was given.

All these cases I have mentioned have been under my observation since November, 1905, and I will not weary you with records of my earlier cases except to mention briefly two of special interest.

CASE 15.—A woman, aged 47 years, had had exophthalmos and other symptoms for more than 25 years. She was admitted into hospital in a very nervous condition; she had slight pyrexia, sweating, dyspnœa, and tachycardia. She died four days after admission with symptoms of heart failure and œdema of the lungs.

CASE 16.—A woman, aged 30 years. This was a severe case; there was a two years' history; exophthalmos was very marked; her hair was turning white. She was in hospital for two months with some improvement when she developed an acute exacerbation of all the symptoms, with marked pyrexia, vomiting, delirium, coma, and death. Death being evidently due to a toxæmia. Progressive loss of weight, pyrexia, sweating, and diarrhœa are always bad signs.

I have not mentioned the various and numerous old methods of treatment of Graves's disease, it would take too long to discuss them. Anything which diminishes the action of the thyroid gland is beneficial, and it is probably in this way that local applications of ice and cold and the x ray treatment act. I believe that in the anti-thyroid preparations we have valuable agents for counteracting the thyroidism of exophthalmic goitre; indeed, Case 1 was apparently saved from a fatal termination by the use of rodagen, Case 2 was cured, and the other cases show good results, and I believe better results will be obtained if larger doses than those I have mentioned are used. Where benefit is not obtained I consider that the dose is too small. Thus Dr. H. W. G. Mackenzie[12] records an extremely severe case of Graves's disease which recovered from all the acute symptoms by taking one ounce of rodagen daily; and Mr. Edmunds[13] has recently recorded three cases of marked improvement treated by the fresh milk obtained from thyroidectomised goats (1½ pints per diem). Heretofore I have never given more than one drachm of rodagen four times a day, as I remembered a case of Dr. G. R. Murray's in which bradycardia and collapse with a subnormal temperature occurred during prolonged treatment with drachm doses of rodagen,[14] but in future I shall, if necessary, give larger doses with caution. The only drawback to rodagen is its price. It costs about 3*s.* 6*d.* per ounce and on that account one feels inclined to prescribe it in small doses. Indeed, recently at the Stanley Hospital I have been trying thyroidectin instead, the good results obtained in Cases 9 and 10 encouraging me to do so.

I will not refer at any length to the value of operation in cases of Graves's disease. It appears to me to be a logical and scientific method of treatment except that we cannot be certain that compensatory hypertrophy will not take place in the portion of the gland left behind. Another patient had very marked symptoms, including nervous twitching, and was quite unfit for work. She was operated upon by my colleague, Mr. F. C. Larkin, who removed a considerable portion of one lobe of her thyroid. She was considerably relieved and is able to do her work with comfort. There is, however, not the slightest doubt that serious risk is entailed, patients not infrequently dying within 48 hours of the operation from sudden cardiac failure, as if from some poison gradually absorbed direct from the thyroid.

The result of the treatment of these cases of Graves's disease with rodagen and thyroidectin will, I am sure, commend the adoption of anti-thyroid medication.

In conclusion, I would urge that when this treatment is being used a prolonged trial, with large doses if necessary, should be given, and careful observations and statistics of the condition of the patient should be noted, so that slight changes may be readily recognised. And I would impress upon the chemist the great importance of the most careful preparation and standardisation of these drugs.

Liverpool.

SOME POINTS REGARDING SPINAL ANALGESIA, WITH A RECORD OF FIFTY CONSECUTIVE CASES.

BY J. MILL RENTON, M.B., CH.B. GLASG.,
EXTRA-DISPENSARY SURGEON, WESTERN INFIRMARY, GLASGOW.

ALTHOUGH it is now fully ten years since spinal analgesia was first introduced there is still considerable difference of opinion as to the value of the method. The question of its relative safety as compared with general anæsthesia and the class of case for which it is best suited have still to be definitely settled. Most of those, however, who have had experience of the method feel that it has a definite sphere of usefulness and is one that has come to stay. The earlier records of unfavourable cases with accounts of the dangers connected with spinal analgesia have kept many from trying it at all. These dangers and bad results, however, are only those incidental to the introduction of any new method or

[12] THE LANCET, Feb. 1st, 1908, p. 393.
[13] THE LANCET, Jan. 25th, 1908, p. 227.
[14] Brit. Med. Jour., vol. ii., 1906, p. 1245.

drug and with a better understanding of the procedure and an improved technique in carrying it out they have almost entirely disappeared. In this country Mr. A. E. Barker[1] has done more than anyone else to place spinal analgesia on a sound and safe basis. He was the first to advocate the use of an injection compound of greater specific gravity than the cerebro-spinal fluid and to demonstrate that by the use of gravity and a study of the spinal curves a high analgesia could be obtained with perfect safety and regularity. In his method the rise in height of the analgesia is entirely due to his heavy compound travelling to the lowest point of the canal, usually somewhere about the upper dorsal region. There is not the least danger of any effect on the upper cervical region, as this is kept well elevated by raising the head and neck, and it must be apparent that it is impossible for his heavy fluid to travel upwards as it settles by mere weight at the lowest part of the canal. By using this heavy fluid one has definite control over the height of analgesia. Where one relies on the injection compound spreading upwards by diffusion or by shifting of the whole column of cerebro-spinal fluid one has no guarantee that once started upwards one will be able to control or limit it. Barker[2] has now recorded over 200 cases treated by this method with most successful results and without any serious after-effects. Spencer and Houghton[3] have likewise recorded 50 very successful cases. McGavin[4] has recently published 50 cases done by the same method with excellent results. In the following 50 cases practically the same procedure as described by Barker has been adopted and his stovaine-glucose solution has been used throughout. I would like briefly to refer to a few of the more important points.

Position of the patient.—Careful attention to this is one of the most important factors in the success of the method. The patient lies on the side to be operated on with the head and neck well raised, except in hæmorrhoid and perineal cases, where the puncture is done in the sitting position. When lying the knees are fully flexed on the abdomen and held there by an assistant. If single-handed, the method of making the patient grasp his own legs and draw them upwards is a good one. Where a leg is injured as in fracture and cannot be drawn up properly I have found the flexing of one leg sufficient to enable the puncture to be performed. The head and neck are always carefully raised by means of pillows or a rest, thus insuring the safety of the cervical region. As regards elevation of the pelvis, there is no absolute rule, except that at most only a slight elevation, one or two inches, is necessary. It is important to have the patient in proper position with the head raised and the pelvis elevated before the puncture is done, so that as little movement as possible will be required after injection.

Puncture.—This can be done either between the third and fourth or second and third lumbar spines. When done here there is no danger of injuring the cord itself, as this terminates at the lower border of the first lumbar vertebra. The fourth lumbar spine is situated on a line joining the highest points of the iliac crests, so that the position for puncture is easily found. Speaking generally, where the highest analgesia is aimed at it should be done between the second and third spines. Occasionally, however, the interval between the second and third has felt so small and that between the third and fourth so much larger that I have used the latter in preference, and have been quite successful in obtaining a high analgesia. Undoubtedly the puncture is most easily and satisfactorily performed absolutely in the middle line, and after a little practice there is little difficulty in entering the dural sac accurately in almost every case. A few exceptional cases may give rise to difficulty, as, for instance, one where the spines could not be felt at all, and where the whole lumbar spine seemed fixed in a forward curve. It was impossible in this case to get the needle in at all. It is important that the needle should be boiled in plain water and not in soda solution, as a trace of this renders the stovaine inactive.[5] I found the nickel needles recommended by Barker to be most satisfactory in every way.

As a rule, from 2 to 2½ drachms of cerebro-spinal fluid should be removed before injecting the analgesic compound. It is striking how in some patients the cerebro-spinal fluid spurts out and in others comes slowly, drop by drop. I have noticed that those cases where the cerebro-spinal tension seems high are more apt to have headache afterwards. It is consequently advisable to draw off rather more cerebro-spinal fluid from them. The compound used has been practically the same as Mr. Barker's and has been specially prepared in ampoules by John Macmillan, Limited, Glasgow: stovaine, 5 grains; glucose, 5 grains; and sterilised water to 100 minims. 1 cubic centimetre (17 minims) is used each time, but as 2 minims remain in the needle one can only count on 15 minims of the solution reaching the canal—i.e., three-quarters of a grain, or about 5 centigrammes, of stovaine are injected. The dose has not been varied almost at all and the most severe abdominal operations have been performed with this dose. A few operations on the extremities have been done with a smaller dose. After injection the patient is gently rolled on to his back, the head and pelvis being kept in the same relative position, and in from five to ten minutes analgesia is usually quite complete and the patient ready for operation.

Height of analgesia.—I have endeavoured by a study of the spinal curves in individual patients to obtain a low analgesia when the operation was on the extremities and only a high analgesia when required. It is obviously unnecessary in operations on the extremities to obtain analgesia to the nipples, and in fact is undesirable, as nausea is more apt to occur with high analgesias. It must be remembered that the spinal curves vary somewhat in different people and also the size of the shoulders and pelvis has an effect on the level of the canal. Accordingly, it is sometimes necessary to modify slightly the procedure in individual cases. In operations on the extremities the puncture is usually made between the third and fourth spines without any elevation of the pelvis, and if thought desirable the shoulders are slightly raised, so that the analgesia does not usually spread higher than the umbilicus. Where a high analgesia is desired the shoulders rest on the table, the pelvis is elevated from 1 to 2 inches according to the case, and the puncture is made between the second and the third spines. It seems probable that analgesia spreads upwards more rapidly when the patient is in the lateral position, so it is consequently advisable to keep him on his side from one to two minutes before rolling him on to his back. As a rule the patient has been kept in the same position with the head raised and the pelvis slightly elevated throughout the entire operation, although recently I have been removing the pelvic pad when the analgesia was high enough. By carefully following out these details, slightly modified in individual cases, one can obtain analgesia to the sternum or nipples without the least danger. In no case has there been any difficulty with the breathing, even although analgesia has several times been noted from 1 to 2 inches above the nipples. The Trendelenburg position has never been used and two inches have been the utmost amount of pelvic elevation. No morphine or scopolamine has been given previous to operation. A screen is placed between the patient and the field of operation so that he cannot see what is going on and everything is done as quietly as possible. It is most important that someone should engage the patient in conversation and keep his attention occupied during the operation. His head and neck should be kept raised while he is being removed from the theatre and he should be well propped up on his return to bed. It is hardly necessary to add that, of course, strict asepsis is essential to the safety of spinal analgesia. I have now carried out this method in 50 cases and have found it very satisfactory. From the following list it will be seen that it has been used in a large variety of surgical conditions.

The following is a summary of the abdominal cases: Appendix (quiescent), 9 cases; appendix (acute), 3 cases; laparotomy above umbilicus, 4 cases; intestinal obstruction, 3 cases; and fæcal fistula of cæcum, 1 case; total abdominal operations, 20 cases. The operations on other parts of the body comprised: Inguinal hernia, 6 cases; removal of testis, 5 cases; removal of semilunar cartilage, 2 cases; removal of renal calculi, 1 case; circumcision, 1 case; varicose veins, 2 cases; hæmorrhoids, 5 cases; wiring patella, 1 case; plating fracture of tibia, 1 case; and suprapubic prostatectomy, 1 case. Failure to produce

[1] Barker: Brit. Med. Jour., March 23rd, 1907.
[2] Ibid., Feb. 1st, 1908.
[3] Spencer and Houghton: Journal of the Royal Army Medical Corps, Nov. 19th, 1907.
[4] McGavin: THE LANCET, April 11th, 1908, p. 1058.
[5] Dean, Meeting of the British Medical Association, 1907.

sufficient analgesia occurred in 3 cases and failure to puncture in 2 cases. I should like to refer in detail to a few of the more interesting of these cases.

CASE 9.—The patient was a man, aged 39 years, who had received a blow over the left kidney. He was admitted with swelling in the kidney region and very severe hæmaturia. He was suffering from an attack of bronchitis and was therefore unsuitable for a general anæsthetic. Puncture was done with the patient on the left side with the pelvis slightly elevated, between the second and third spines. There was a brisk flow of cerebro-spinal fluid and two drachms were withdrawn. One cubic centimetre of solution was injected. The patient was kept on the left side for five minutes, when analgesia was two inches above the costal margin. He was then turned on to the right side and the operation was begun. Twelve stones were removed from the kidney and the patient had no pain at all during the operation which lasted 40 minutes. He had slight discomfort once in the epigastrium when one of the uppermost stones was being dragged out. The patient chatted freely during the operation and was greatly pleased. Paralysis of the legs lasted one and a half hours. He was very well the next day. There was no headache or sickness at all.

CASE 12.—The patient was a man, aged 52 years, with intestinal obstruction with fæcal vomiting of three days' duration. He was very feeble. The pelvis was slightly elevated; puncture was done between the second and third spines. There was a slow flow and only a few drops were withdrawn. One cubic centimetre of solution was injected. In five minutes analgesia was above the umbilicus and incision was made below the umbilicus. There was obstruction due to a malignant tumour, so a Paul's tube was inserted. The operation lasted 30 minutes and the patient was quite comfortable all the time. The pulse was very feeble at the start but was rather better after the operation. At the end analgesia was to the ensiform. The patient was very well the next day and there was no headache or sickness.

CASE 15.—The patient was a woman, aged 45 years, with malignant disease of the stomach causing pyloric obstruction. She was very feeble. The pulse was so weak that a general anæsthetic was thought unsafe. The pelvis was elevated two inches; puncture was done in the second and third space. There was a slow flow; one drachm was removed and one cubic centimetre of the solution was injected. In seven minutes there was complete analgesia to the ensiform and the abdomen was opened by an incision above the umbilicus. Disease was so extensive that a gastro-enterostomy could not be done and the abdomen was closed. Throughout the operation, which lasted 20 minutes, the patient was quite comfortable, and so far as the analgesia was concerned a gastro-enterostomy could have been done. The pulse kept fairly good all through and she had neither sickness nor headache.

CASE 33.—The patient was a man, aged 67 years (the oldest case), with hydro-hæmatocele and diseased testis. He had marked arterio-sclerosis. Puncture was done in the third and fourth space in the recumbent position. There was no elevation of the pelvis. There was a good flow and two drachms were withdrawn; one cubic centimetre was injected. In eight minutes there was complete analgesia up to two inches above the pubes. The whole mass was removed along with the testicle and the patient felt no pain at all. He was very well afterwards. There was no headache, sickness, or shock.

CASE 35.—The patient was a man, aged 41 years, with acute ruptured appendix. He was very ill and the abdomen was very rigid. Puncture was done in the second and third space; there was a brisk flow and two drachms were withdrawn; one cubic centimetre was injected. In ten minutes there was analgesia to the costal margin and the operation was begun. It was striking in this case to feel the rigidity of the muscles pass off and the abdomen become soft. There was no pain or discomfort during the operation, which lasted 35 minutes. At the end there was analgesia to the nipples. The patient was very well the next day. There was no sickness or headache.

CASE 36.—The patient was a man, aged 40 years, with oblique fracture of the right tibia. Puncture was done in the third and fourth space on the right side; there was a slow flow, one drachm being withdrawn; one cubic centimetre of the solution was injected. There was no elevation of the pelvis and the shoulders were slightly raised. In five minutes the operation was begun and the patient was quite comfortable while his fracture was plated together. The operation lasted 50 minutes. He was very well the next day and there was no headache or sickness. There was analgesia to the umbilicus.

CASE 47.—The patient was a man, aged 65 years, for suprapubic prostatectomy. Puncture was done in the third and fourth space. There was no elevation of the pelvis. There was a brisk flow, two drachms being withdrawn; one cubic centimetre was injected. In nine minutes there was complete analgesia to the umbilicus and the operation was begun. There was no pain or discomfort at all, not even when the prostate, a rather adherent one, was being separated. The operation lasted 20 minutes and the patient was very well all through. He was very well the next day. There was no headache or sickness and no apparent shock.

Condition during operation.—If the stovaine has been properly given the patient has no pain at all during the operation and will chat away quite comfortably during the most painful procedures. In many cases tactile sensation remains and the patient can tell that he is being touched although he has no pain. There has been no anxiety from the analgesia during any of the operations. In only one case did the pulse become rather feeble. This was an appendectomy in a young man who was very nervous, and it so rapidly improved that I think it was due to his mental condition. There has never been any respiratory trouble and no cases of faintness have occurred. Occasionally nausea and even sickness occur at the commencement of or during the operation. This is most apt to occur when a high analgesia has been obtained and in abdominal cases. It is undoubtedly in some cases due to nervousness, but in others this will not explain it. Five of our cases have had some nausea and sickness during operation, but it has always passed off in from three to ten minutes and the operation has been proceeded with quite comfortably.

Abdominal cases.—Abdominal relaxation is perfect and no straining can take place as the abdominal muscles are paralysed. It is striking in an acute abdominal condition with marked rigidity to feel the muscles gradually relax and become soft as the stovaine begins to act. Cutting of the peritoneum causes no discomfort, but traction on the bowel or peritoneum sometimes gives rise to discomfort in the epigastric region and a feeling of nausea. This is more apt to occur if the analgesia has not extended far above the seat of operation and it was more marked in our early cases. Later I found that if the analgesia extended to the mid-sternum this feeling was rarely complained of. One of our early appendectomies had to get a little chloroform during the separation of some dense adhesions, as it caused him so much discomfort in the epigastrium. Acute abdominal cases do extremely well and none of them have had any nausea, sickness, or headache. Four cases of laparotomy above the umbilicus have been done, and in all the analgesia was quite complete, no pain being felt at all. One cannot, however, rely on quite such a long analgesia as lower down.

Hæmorrhoid and perineal cases.—Here the puncture is done in the sitting position and the effect of the heavy compound is well seen. Owing to its weight it runs down into the sacral curve and one only gets analgesia of the perineal region, the legs and abdomen remaining unaffected, although by the end of the operation there may be some analgesia and loss of power in the legs. The patient is quite unconscious of the dilatation of his sphincter and his pulse is not affected at all.

Hernias.—Here spinal analgesia is most satisfactory, the relaxation of the muscles is perfect, and no pain or discomfort is felt.

Operations on the extremities.—The analgesia is easily got here and is absolutely perfect, even tactile sensation being often absent.

Failures.—Out of the 50 cases there have been two failures to puncture and three failures to get sufficient analgesia after apparent injection.

Failures to puncture.—Case 20, a man, aged 62 years, already referred to, where the lumbar spines could not be felt at all; and Case 44, a woman, aged 25 years. After some trouble the needle appeared to pass in all right, but no cerebro-spinal fluid could be got. Puncture was tried in two different places with the same result.

Failures to produce analgesia after injection.—Case 6, a

man, aged 20 years. There was a troublesome puncture and bleeding, blood coming with cerebro-spinal fluid. The patient got analgesia up to one inch above the pubes, but as it was an appendix operation a general anæsthetic had to be given. Case 39, a man, aged 25 years, with varicocele; there was an easy puncture and only a partial analgesia was obtained. The skin incision caused some pain and a general anæsthetic was necessary. Case 43, a man, aged 57 years. There was a troublesome puncture, blood coming with cerebro-spinal fluid. Absolutely no effect was produced. McGavin[6] has also recorded three very similar cases where little or no effect was produced.

Three explanations of these failures have been offered: (1) inactive stovaine; (2) a failure to land the full dose within the spinal theca; and (3) insusceptibility of the patient. I feel convinced that the cause in cases such as the above is the fact that the compound has not been wholly landed within the dural sac, but has really been injected outside. It is possible for this accident to occur even though cerebro-spinal fluid has been got. By using Barker's fine cannula it is hardly possible for the injection to escape between the needle and the post layer of the dural sac unless the patient moves at the time of injection when the point might slip out. With a very lax sac, however, it is quite easy to puncture both layers of the sac and when injection is made for the whole or part of the compound to escape anteriorly. This is undoubtedly not common, but I suggest it as accounting for some of the cases where no effect has been produced. I had one other case where the injection caused absolutely no effect, and so convinced was I that the compound had not entered that I repunctured and again injected the full dose. This acted in absolutely the usual way. I was not able to give any of the three failures a second injection, but had it been done, failure might have been prevented. It is difficult to say whether the fact that blood came with the cerebro-spinal fluid and in one case continued to do so even after two drachms had been withdrawn, had anything to do with the failure. It is, of course, always a possibility that the stovaine may be inactive, but when freshly and carefully prepared this is not likely. Provided the full dose of active stovaine is injected accurately within the sac it is hardly conceivable that it should act on the nerves of one person and fail utterly to affect those of another. I feel that the explanation of idiosyncrasy is only to be accepted when all others fail. Where the analgesia cannot be got to rise it is always possible that some of the heavy compound has run down into the sacral curve and got imprisoned there. While these failures are undoubtedly flaws in the method I feel that they are all preventable and with increased skill and experience will not occur at all.

Length of analgesia.—The longest operation performed was a fæcal fistula of the cæcum which lasted 80 minutes. Analgesia to a needle has been noted in the legs as long as two hours after injection. Generally speaking, however, analgesia from 50 to 90 minutes can be relied on, with rather a shorter period for the epigastric region.

After-effects.—No bad results of any kind have developed afterwards which could be traced to the analgesia. Headache and sickness are occasional sequelæ but have not been marked in our series. 35 of the cases have had absolutely no headache or sickness. Five cases, mostly nervous patients, have been troubled with sickness and five have had some headache which, however, has always been controlled by aspirin or phenacetin. It is to be noted that none of the acute abdominal cases have had the least trace of headache, nausea, or sickness. The paralysis of the legs has always passed off completely in from one and a half to three hours, and no prolonged or permanent paralysis has been seen. There has never been any trace of meningeal irritation. One case was operated on twice with stovaine, and at the second operation, five days after the first, the cerebro-spinal fluid was found quite normal. Paralysis of the external rectus of the eye, which has been recorded,[7] has not been seen in any of the cases. Retention of urine does not seem to be more marked after using spinal analgesia. As a matter of fact, most of the hernias and abdominal cases passed urine themselves. Tympanites has been present next day in a certain number of the cases but never to any marked extent. As many as possible of the cases have been examined a month or six weeks after dismissal and have been found absolutely well.

Shock.—The question whether spinal analgesia prevents shock is one of the greatest importance and has been urged as one of its chief advantages. Dean,[8] who has drawn special attention to this aspect of the subject, is of the opinion that it is the method *par excellence* in acute abdominal cases where shock is feared. One of our abdominal cases, an operation on the stomach and transverse colon of 80 minutes' duration, undoubtedly suffered from shock three hours later, but in her case the analgesia had passed off before the end of the operation and some chloroform was required for closing the abdominal wall. None of the other cases have shown any signs of shock and everyone has been struck with how satisfactory the method is in weakly patients and in acute abdominal conditions. It is also striking that such procedures as dilatation of the sphincter, ligature and division of the cord, division of the foreskin, and division of the peritoneum not only give rise to no pain but do not affect the pulse in the slightest degree.

Conclusions.—In ordinary healthy people it comes to be a matter of choice whether spinal analgesia is used or not. Those who have a dread of general anæsthesia will, as a rule, choose spinal analgesia, and there now seems no reason why they should not have the benefit of it. Nervous patients, on the other hand, will usually prefer general anæsthesia. It is, however, when an operation has to be performed on a patient unsuited for general anæsthesia that the great advantage of the method is seen. When properly used it has no bad effect on the heart or lungs, and is therefore much safer in some cases. I have also been struck with how well suited it is for certain types of cases which are unfavourable for general anæsthesia, such as old people with arterio-sclerosis, weak, feeble patients, and those suffering from certain acute abdominal conditions. Alcoholics who are notoriously troublesome to anæsthetise do excellently well with spinal analgesia. Tuffier[9] also points out that it can often be safely used where an operation has had to be abandoned on account of anxiety with the anæsthetic and records two cases of this nature. In our own series we have had two cases (a fæcal fistula and a hæmorrhoid case) where the patients took the anæsthetic so badly that it was discontinued. They were both operated on next day under stovaine without any anxiety.

From a study of the recorded cases and from my own experience of this method I feel that it can now compare favourably in point of safety with general anæsthesia. Moreover, I think there is little doubt that in a fair number of surgical conditions it is the safer and better method and its use gives the patient an increased chance of recovery. At the same time it must be clearly understood that a careful study of the subject and the utmost care in carrying it out are necessary to insure its success and safety. Dr. J. Crawford Renton has operated on the majority of the cases and has been much pleased both with the analgesia and with the condition of the patients after operation. I am indebted to him for opportunities of carrying out this method. I would also like to thank his house surgeons, Dr. T. P. Grant and Dr. H. M. Grainger, for their assistance.

Glasgow.

[6] Loc. cit.
[7] Torrance: Surgery, Gynæcology, and Obstetrics, December, 1907.

AN APPLICATION OF OPSONIC METHODS IN COMPARING HUMAN AND BOVINE TUBERCULOSIS.

BY F. L. POCHIN, M.D., C.M. EDIN., D.P.H. CAMB.

UNTIL 1901 it was generally thought that tuberculosis in animals and man was one and the same disease. In that year, however, Koch created a sensation among those assembled at the British Congress on Tuberculosis by stating that, in his opinion, human tuberculosis differed from bovine and cannot be transmitted to cattle. Further, he maintained that bovine tuberculosis is scarcely, if at all, transmissible to man.[1] His opinion, it will be remembered, was arrived at as the result of the following experiments. 1. Six bovines were fed for seven months with food mixed with sputum

[8] Loc. cit.
[9] Tuffier: Société de Chirurgie, Paris, May, 1908.
[1] THE LANCET, July 27th, 1901, p. 187.

containing tubercle bacilli of human origin. None of them contracted the disease. 2. The same result was obtained with four animals which were caused to inhale the bacilli in the form of spray. Injection of bacilli into the peritoneal cavity or subcutaneously was no more successful. 3. Swine, asses, sheep, and goats were also unaffected. 4. In all cases where bacilli of bovine origin were substituted, the other conditions remaining the same, infection followed.[2] Koch then pointed out that experiments with human beings to determine their relative susceptibility were obviously impossible, but, in the opinion of the speaker, infection of the human subject was very uncommon; and he emphasised the last point on the ground that primary tuberculosis of the intestine is very rare, whereas it ought to be one of the commonest of diseases if the danger of infection through milk is real, owing to the quantity of milk consumed by children.

These opinions of Koch were contested at the Congress. They were contrary to the finding of two Royal Commissions which had been held in this country shortly before, and the general consensus of opinion was against Koch. Woodhead,[3] Cohnheim, Aufrecht, and Peterson,[4] all held that primary tuberculosis in man is comparatively common. This opinion was shared by the large majority of authorities in this country, and the evidence in favour of infection being due to tuberculous milk and meat was very strong.[5] Ravenel described striking cases in support of this view.[6] Hueppe quoted further cases to the same effect.[7] Crookshank combated the idea that human tuberculosis cannot be transmitted to bovines by describing successful inoculations carried out by himself and Sidney Martin.[8] It was, however, felt that opinions expressed so emphatically by an authority of Koch's eminence on a matter so nearly affecting the public health demanded the fullest investigation, and a Royal Commission was appointed to determine the questions at issue, whose findings were antagonistic to Koch's opinions, he having been misled, in the opinion of the Commission, by using only one strain of the bacillus and that not a very virulent one.

Koch, as I have said, in his speech in 1901 stated that experiments on the human subject to determine the effects of the bovine bacillus were out of the question, and this was obviously true when he made the statement, but in thinking over the whole matter it occurred to me that since that time the researches of Wright and Douglas on the opsonic effects of the blood fluids and their methods of estimating the opsonic index had placed in our hands an exact method, not only of experimenting with and ascertaining the resistance of human beings to the two strains of bacilli, but of extending the experiments to bovines and measuring their resistance also. It appears evident that a method of investigation which does not involve inoculation and feeding experiments or the infection and destruction of the animal will be advantageous on the ground of cheapness and expedition, and might be more certain and conclusive. If also it enables investigations to be carried on with the human subject with equal ease and certainty it will be still more valuable, a further advantage being the possibility of a very much larger series of observations. With this object in view I have carried out a series of illustrative experiments, with the results detailed in the succeeding part of this article.

The technique adopted was that of Wright and Douglas, with certain necessary modifications. Emulsions of human and bovine tubercle bacilli respectively were obtained from the Lister Institute, and every effort was made to get them as nearly as possible of the same strength, the origin of the two strains being guaranteed by the Institute. The same emulsions were used throughout all the observations, being stored in tubes, well shaken before use, and thoroughly centrifuged at the same time and in the same machine to get rid of clumps. Two volumes of white blood corpuscles, one of emulsion and one of serum, were used in all cases, and the time of incubation was a quarter of an hour. The strength of the emulsions had been so arranged as to give an average count of about one bacillus to each polymorphonuclear leucocyte. In the case of the bovine series the incubator was set to the normal temperature of the bovine—viz., 38·3° C. In all other cases the incubator of course worked at 37° C. The blood and leucocytes for the bovine series were obtained at the time of slaughter of the animal for food and in every case the carcass was afterwards inspected to make sure it was free from tuberculous infection. In every case the average of 100 counts was taken in arriving at the figures stated.

Bovine series.—This series comprises the result of observations taken with ten bovines of both sexes, but not differing very widely as to age, all being young adults of the age usually selected for slaughter—viz., from two to three years. The object of the observations was to ascertain whether the action of the opsonins in bovine blood was the same with regard to tubercle bacilli of both human and bovine strains, or whether there was any marked difference, which would indicate a distinction between the bacilli with regard to their susceptibility to the action of opsonins, and therefore a difference in the resistance of the animal to infection by bacilli of the different strains. The results are presented in the following table:—

TABLE I.—*Number of Bacilli of Human and Bovine Origin Respectively, taken up by Polymorphonuclear Leucocytes of Cattle (Average of 100 Counts).*

Number.	Human bacilli.	Bovine bacilli.
1	4·25	2·64
2	1·00	0·44
3	1·98	1·06
4	0·64	1·04
5	2·44	1·85
6	1·85	0·95
7	3·80	0·95
8	1·83	1·02
9	1·50	0·65
10	1·40	0·55
Total	20·69	11·15
Average of 1000 counts	2·069	1·115

This table indicates that there is a marked difference in the number of bacilli of the two different strains taken up by bovine polymorphonuclear leucocytes, and therefore also in the resistance of the animal to each. It will be seen that in every case save one (No. 4) the number of human bacilli ingested by the leucocytes is considerably greater than the number of bovine bacilli so absorbed. The phagocytes in some instances absorbed about three times as many of the one strain as they did of the other, and on the grand average of 1000 counts about 85 per cent. more human bacilli were absorbed than was the case with the bovine variety. This explains the comparative immunity of the bovine to infection of human origin observed by others, and may also explain Koch's failure to infect his animals, for an animal might easily be immune to a culture of mild human virus and subsequently succumb to a bovine culture owing to its inferior resistance to the latter variety. This comparative immunity is not, however, so great as to justify the conclusion that bovines are exceptionally resistant to infection of human origin, and indeed would easily break down under the invasion of human bacilli of high virulence, as was found to be the case by the Royal Commissioners.

Resistance of children.—A series of counts was then made to ascertain the resistance of children to the bacilli of the two different strains, and a result quite the converse of that in Table I. was obtained, the experiments all giving consistent readings.

It will be seen from Table II. that the counts were much greater with the bovine bacillus than those given with bacilli of human orgin. The average figures for these ten children and for 1000 counts in each series show a greater resistance to the bovine type by 254 per cent. as compared with the resistance to human bacilli. If these observations are correct, therefore, the average country child would be about two and a half times more likely to succumb to human infection than he would to infection through milk, assuming

[2] Ibid.
[3] Medical Press and Circular, 1888, p. 265.
[4] Würzburg Therapeutische Monatshefte, 1891, p. 18.
[5] Sladen: THE LANCET, August 10th, 1901, p. 369.
[6] THE LANCET, vol. ii., 1901, pp. 349, 443.
[7] THE LANCET, August 31st, 1901, pp. 611 et seq.
[8] THE LANCET, Nov. 2nd, 1901, p. 1177.

that in each case the mode of entrance to the body were the same; and I think one might go further and omit this last proviso, for by the method under description the actual

TABLE II.—*Bacilli Ingested by Polymorphonuclear Leucocytes of Children under Ten Years of Age.*

Number.	Human bacilli.	Bovine bacilli.	Remarks.
1	1·25	4·04	Strong healthy boy.
2	0·91	2·02	Delicate rickety boy.
3	1·28	2·25	Robust boy.
4	1·10	1·66	Robust girl.
5	1·06	1·56	Healthy girl.
6	0·39	1·62	Badly nourished girl.
7	0·76	1·75	Healthy girl.
8	0·80	3·79	"
9	0·74	2·08	Healthy girl, phthisical mother.
10	0·58	1·85	Healthy girl.
Total	8·89	22·62	—
Average of 1000 counts	0·889	2·262	—

resisting power of the blood, as conferred by the potency of its opsonins, is measured, and, as far as we know, this is the same in the other parts of the body as it is in the intestinal walls.

Unfortunately for the race, the degree of immunity against tuberculosis enjoyed by human beings is not great. Indeed, judging by the incidence of the disease per unit of population, it appears to be small—so small that an increase of two and a half times enjoyed in relation to the bovine variety by no means secures such a degree of safety as to warrant for one moment any relaxation of measures of precaution against infection through milk.

TABLE III.—*Bacilli Ingested by Polymorphonuclear Leucocytes of Healthy Adults (Average of 100 Counts).*

Number.	Human bacilli.	Bovine bacilli.
1	0·99	1·21
2	0·80	1·46
3	0·66	1·00
4	0·99	2·29
5	0·74	2·45
6	1·12	1·68
7	0·42	0·93
8	0·84	3·90
9	1·31	4·28
10	0·76	2·92
Total	8·63	22·12
Average of 1000 counts	0·863	2·212

While showing some rather wide variations in individuals the above table approximates in its totals and averages very closely to the results shown by Table II. and the same remarks apply to it.

A few observations have been made by the writer in the cases of two phthisical patients who are undergoing treatment by Koch's tuberculin T.R. regulated by opsonic methods. In each of these cases the opsonic index has always been taken with bovine as well as with human emulsion to ascertain whether the indices in each set of observations move in harmony the one with the other. So far it appears that such is not the case. The index to bovine bacilli appears to be very little affected by injection of tuberculin prepared from human bacilli. As far as the observations go, however, the use of a bovine tuberculin is followed by a marked rise in the opsonic index to bovine bacilli. The observations are so far very few and this part of the subject will be submitted to further investigation. In an ordinary country practice the number of cases available for observation is not large and the time over which such observations will have to be spread in order to get an adequate series of cases will naturally be considerable.

I think that the series of observations described in this paper tends to confirm the conclusions of the Royal Commission and to support the view that Koch's opinion was erroneous, and I also hold that this application of the discoveries and methods of Wright and Douglas affords a certain, expeditious, and inexpensive (though tedious) mode of carrying on observations on the resistance of animals to diseases of human origin, and further that it also affords a method of gauging the resistance of human beings to virulent diseases from which man and animals suffer in common.

Fakenham, Norfolk.

EPIDEMIC INFANTILE DIARRHŒA.[1]

BY V. J. GLOVER, M.D. LIVERP., M.B., CH.B. VICT.

I.—*Etiology.*

DURING the course of my practice in the year 1904 I was struck by the great number of cases of epidemic infantile diarrhœa that I met with. Prior to this, as a lecturer on hygiene, it had always seemed to me that our evidence as to its causation was unsatifactory—in fact, it was *nil*. We all knew the months when it was most prevalent and the atmospheric conditions then existent; as also that breast-fed infants usually escaped attacks, but that infants, especially not breast-fed and under one year of age, were the chief victims. Almost universal has been the cry to provide sterilised milk, and in towns depôts were established to supply this commodity with the result that the disease has been less prevalent where the depôts were instituted.

From this result I formed the belief that under certain conditions milk carried the infecting agent. But then there was the disturbing factor—how do the breast-fed infants who contract epidemic summer diarrhœa, small though the percentage be, contract it? This was the stumbling block. In the year 1904 I noticed that while my own infant was sleeping in the garden, with his mouth open and full of saliva, as infants' mouths usually are, several house flies were not only on his lips but actually within the mouth. The child was subsequently attacked by a most virulent diarrhœa. This was in August. From this time I focussed my attention upon the house fly. I found that the great majority of cases of diarrhœa occurred amongst the working class. The conditions of life amongst them entail that the kitchen, which is always small, hot, and stuffy, is, besides being the cooking place of the family, also the one and only living room by day. Food is practically never off the table; the milk-jug and sugar-bowl are at all times in evidence. The kitchen and scullery consequently by their temperature and contents attract the house fly. I have been conducting observations during and since 1904 and I find that "*whenever* there is summer diarrhœa in a house there are also house flies in abundance, particularly in the working man's house." If the dwelling be a larger one, as that of a wealthier man, still in the kitchen and pantries where the food is stored there is the fly again in strong numbers.

In the earlier part of 1905 I propounded my view to Lieutenant H. Pierpoint, I.M.S. (Holt Fellow in Pathology), as to the causation of epidemic infantile diarrhœa. It was as follows: "The house fly is the carrier of the infection of infantile summer diarrhœa. It infects breast-fed infants by creeping into their mouths when they are asleep; a habit of many infants is to sleep with the mouth slightly open or lips a little apart. Such infants' mouths contain a plentiful supply of saliva mixed with milk. Infants which are not breast-fed are infected by ingesta—e.g., usually the milk, an infection-carrying fly having fallen into it." As I was too busy in general practice to devote the necessary time to bacteriological research he agreed to help me when the disease became prevalent, as it did later in the year. I provided myself with sterilised milk, taking care to do the sterilisation myself. At different periods I caught flies in infected houses and placed them in a tube of the sterilised

[1] An extract from the M.D. thesis.

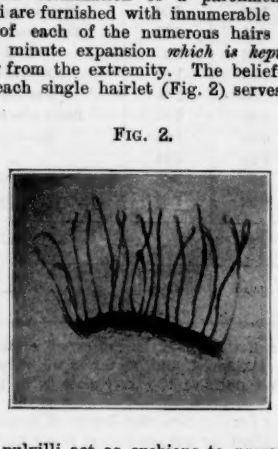
milk. In some cases I had a control tube of the milk which I had sterilised. I also caught house flies at random from non-infected houses and placed them in sterilised milk. The tubes were then handed over by me to Lieutenant Pierpoint. He made a number of cultures. The conclusion we came to was: "That the house fly is the carrier of swarms of micro-organisms, and overclouding all other varieties by their tremendous number are the staphylococci. To have isolated and made pure cultures of the different micro-organisms carried by the fly, to have made inoculation experiments with these when isolated, would, we felt, have entailed at the very least nine months of one man's sole time each day—in fact, it would have meant one person's daily work for two or three years." This was a sacrifice neither of us could afford to make and we abandoned bacteriological research into the subject at this point. In connexion with this I may allude to one point. At one time I tried to use some of the corporation sterilised milk but had to abandon it as we found staphylococci in the control tube. Whether the flies were taken from an infected or non-infected house they always carried multitudes of micro-organisms.

My next step was to investigate the anatomy of the house fly, its life-history, and habits. The best treatise upon it is by James Samuelson, "The Earth Worm and the Common House Fly," published by John Van Voorst, to which I am indebted for the following information. "It is an insect belonging to the order *diptera* (two-winged). The body of the fly is composed of three sections, viz.:—1. The head. 2. The thorax or chest which is subdivided into three parts, viz.: A—the prothorax which is the anterior part; B—the mesothorax or middle part; C—the metathorax or posterior part. 3. The abdomen which contains amongst other organs the reproductive organs. On the prothorax are borne the antennæ or feelers which are the tactile organs. On the prothorax is found the first pair of legs; on the mesothorax the wings and second pair of legs; and on the metathorax the last pair of legs."

FIG. 1.

The leg of the fly is divided into five distinct limbs. The upper four of these I will dismiss with the remarks that covering them are minute hair-like projections which the fly seems to use to brush its wings with, as any casual observer can see if they choose to watch a fly on the wall at any time. The most interesting portion of the leg of the fly is its final, that is, fifth or tarsal, joint. The tarsus or foot of the fly is subdivided into five joints, the final one being provided with an apparatus enabling the insect to walk upon what appears to us to be perfectly smooth surfaces and to proceed in a position opposed to the laws of gravity. This apparatus consists of two moveable claws (Fig. 1), which the fly can affix to any small eminence or depression it meets in its course; and also of a pair of membranous expansions called "pulvilli" or pads which, when magnified, appear like the broad termination of a parchment battledore. These pulvilli are furnished with innumerable hairs; at the termination of each of the numerous hairs covering the surface is a minute expansion *which is kept moist* by a fluid exuding from the extremity. The belief now prevails that whilst each single hairlet (Fig. 2) serves as a sucking

FIG. 2.



disc the two pulvilli act as cushions to preserve the larger hooks from abrasion, like the soft cushions that protect the sole of a cat's foot and enable it to tread so lightly.

In the house fly the reproductive organs are asexual. The female is distinguished by having a small tube—viz., the ovipositor—placed at the end of its abdomen. This organ consists of three or four rings which the fly can protrude or retract at will and which she employs for the purpose of depositing her eggs. The female's internal organs consist of a pair of branching tubes in which the ova are developed, and the male has tubes and glands which furnish the spermatzoa-containing fluid. The sexual organs of both male and female are situated in the abdominal portion of the body. According to Keller, the female deposits her eggs six to eight days after impregnation; this she usually does in heaps of decaying substance such as her instinct denotes will most suitably nourish her larvæ—e.g., dung-hills and the heaps of vegetable and other substances found in the neighbourhood of our houses. "If," says Keller, "the fly be enabled to choose the place which suits her best for the deposition of her eggs (as, for instance, in my sugar basin, in which I placed a quantity of decayed wheat) she takes a correct survey of every part and selects that in which she believes her ova will be best preserved, and her young ones well cared for. If there were too much moisture, the maggots would be drowned; if too little, the first drought would cause eggs and larvæ to become desiccated. Having chosen a suitable locality, one neither too wet nor too dry, she protrudes her little ovipositor and therewith lays her eggs, by the side of and upon one another. During the operation she sits perfectly still, remaining so for seven and a half minutes, and laying 70, 80, or 90 eggs."

Keller observed that the fly does not die after oviposition but believes, along with other naturalists, that she deposits her eggs three or four times during her life of a few weeks or months. He assumed that the fly deposits 80 ova at a sitting and does so four times in her life. Keller has drawn up a table showing that one fly in a single season may be the progenitrix of over 2,000,000 flies. This accounts for the tremendous number of flies met with in the summer, although a great number of her eggs are never hatched, being destroyed by drought, flood, or birds or animals preying on them, and a like fate meets many of the larvæ. Such is the portion of the anatomy and life-history of the fly, which bears upon summer diarrhœa.

I will now pass on to describe how the fly probably acts as the carrier of the infective agent of summer diarrhœa.

Various writers have marked the prevalence of summer diarrhœa with a high ground air temperature; with this I agree, particularly when occasional showers alternate with prolonged high atmospheric temperature. We know that micro-organisms flourish best at the body temperature; this temperature is most nearly approached in both the ground air and atmosphere when infantile diarrhœa is most prevalent in any country. Moreover, micro-organisms want a certain amount of moisture present to flourish best as then they get a better nutritive medium. Now when we have occasional showers and a maintained high atmospheric temperature, and also high ground-air temperature, we have an ideal medium for micro-organismal growth. To my mind the organism of epidemic infantile diarrhœa is one which flourishes in such circumstances. Furthermore, investigation has shown that the fly requires neither too much nor too little moisture when depositing her eggs and that the sites she usually chooses are heaps of decaying vegetable matter or dung, which it is also well known are swarming hotbeds of micro-organismal life. I have pointed out that during the act of oviposition she remains motionless for seven and a half minutes. My theory is that whilst walking over the nauseous material in which she lays her eggs and during her act of oviposition multitudes of micro-organisms—and pre-eminent amongst them the *unknown one* of infantile summer diarrhœa, which seems to me to belong to the group of staphylococci in all probability—*adhere to* the moist sucker-like terminations of the hairs on the pulvilli of the fly's legs. Of course, any house fly, male or female, in its travels may pick up the organism as both sexes haunt masses of decaying vegetable and organic matter, but it is evidently the female that acts as the chief carrier.

The house fly loves warmth, and also the delicacies of our tables, so that we find it in abundance in our homes, frequenting the sugar bowl, the jam pot, and often falling into the milk jug. In this way it carries the contagion, which is left behind in our food, and when the fly falls into the milk the infective agent is washed off it and, unseen by us, floats in the milk. Babies often sleep with their months open and frequently also with milky saliva moistening their lips. As I mentioned previously, the fly seems to be attracted to an infant's mouth, and often will venture slightly inside it, the poison being washed off the insect's legs and infecting the child, which contracts summer diarrhœa even if breast fed. Of course, breast-fed cases of the disease are rarer than when the child is artificially fed, as it is not every infant who sleeps with open mouth. Moreover, the artificially fed child is constantly open to additional infection by virtue of its milk-supply, as also the sugar used to sweeten it. Usually the milk for the child is prepared twice daily and left uncovered either in the larder in better class houses, or amongst the poorer classes in the kitchen, so that the flies drop into it, and as the fly is removed and the milk not re-boiled but simply warmed before giving to the baby, the micro-organism remains alive, and later baby contracts the diarrhœa, especially among the poorer classes.

II.—*Methods of Prevention.*

The question now arises, How may epidemic infantile diarrhœa be prevented? During the years 1904, 1905, and 1906 I recommended patients of mine to keep a fine meshed muslin cover over the infant's face when sleeping. The milk should be prepared, diluted with water, barley water or lime water, and the requisite cream and sugar added, then boiled. In should then be placed in a vessel which is covered with a muslin cover and kept in a cool, well-ventilated place, for example, a safe or larder. A suitable covering is easily manufactured by twisting a piece of wire into a ring shape and sewing a muslin cover to it. The muslin should be renewed frequently. The milk should be prepared thus twice daily and a fresh supply used each time. All vessels used in preparing the milk should be scrupulously clean and scalded before use. The bottle used should be of the Lamb feeder type and should be cleaned after use, and then half a teaspoonful of boric acid should be placed in it, and the bottle filled up with hot water. The teat should be scrubbed and kept in a weak boric acid solution. Before again using both bottle and teat should be washed in warm water. I can safely say that where the above procedure has been adopted—and the cases are numerous—I have not known a case of epidemic infantile diarrhœa to occur. All vegetable and animal refuse from the house, such as cabbage leaves, potato peelings, tea leaves, &c., should be burnt. No open ashpits should be allowed, but galvanised iron dust bins with a well-fitting lid should be insisted upon, and vegetable and animal refuse should be rigidily excluded from these. The bins should be emptied twice weekly. The dung from stables and shippons which are near dwelling houses ought to be frequently removed, and not allowed to accumulate as is usually the case. People should be instructed to keep their eatables in a safe outside the house, and such should be a necessary adjunct of every house, and should have a fine perforated metal door. Fly papers, of the sticky variety, should be at once used when flies appear, and if the pest gets numerous a little turpentine should be poured over some dying cinders on a shovel occasionally. I do not advise the wholesale extermination of the fly, for it has its place in nature. In fact, it is indispensable to our health and comfort, for if you turn over the body of some recently killed creature in the fields you will observe its frame is a seething mass of maggots. Thousands of these are the larvæ of the house fly. Returning in a few days you will find that they have devoured all the carcass save a little skin and the bones, the latter sinking into the ground and forming a valuable manure. So we see that the fly thus prevents decaying animal and vegetable matter decomposing into poisonous and ill-smelling compounds, which would breed pestilence. In turn, the larvæ, having developed into the fly, are preyed upon by birds, frogs, &c., which in turn are preyed upon by man and other animals, or are converted into constituents of the soil.

By the measures which I have recommended the occurrence of epidemic infantile diarrhœa can be effectually prevented. In large towns where there is already a system of depôts where sterilised milk can be obtained it would only be necessary to go a step further and to print a leaflet of instructions and to provide the gauze articles at a low cost. Sanitary authorities could supervise the contents of the galvanised bins, &c.

Liverpool.

AN UNUSUAL CASE OF CHRONIC BI-NITROBENZENE POISONING.

BY EDWARD WALKER, M.D. EDIN.,
HONORARY PHYSICIAN TO THE HUDDERSFIELD INFIRMARY.

A YOUTH, aged 16 years, was admitted into the Huddersfield Infirmary on the evening of May 25th, 1907. In appearance he was pale and bluish, though the blueness did not amount to cyanosis. He was very weak and prostrate. His skin was a dirty yellow and his conjunctivæ were also yellow. He was restless and short of breath, rambling, excited, and sleepless. The temperature was normal; the pulse was 80, feeble, and of low tension. The tongue was dry and coated, the palate was yellowish, and the gums were blue. There was marked tenderness over the liver, stomach, and spleen. There was bilious vomiting and the bowels were constipated. The urine was dark brown in colour but clear and of specific gravity 1022. No bile was present. He was not in a condition to give an account of himself or to detail any history of his illness; but the condition of the urine, the colour of the lips and palate, the peculiar yellowness of the skin and conjunctivæ, the yellow pigmentation on the hands (so constantly found in workers amongst bi-nitro compounds), together with the tenderness over the liver, spleen, and stomach led us to make the diagnosis of chronic bi-nitrobenzene poisoning. We subsequently learnt that he had been working at some neighbouring chemical works amongst bi-nitro compounds from the previous January to April and that during that time he had on two occasions—once in February and once in March—suffered from slight attacks of acute bi-nitrobenzene poisoning; also that on each occasion he had been off work for two days. On April 29th he had another attack of a somewhat more severe character. He felt ill and weak, was dizzy, and had a staggering gait. He was breathless and his face was pale, and his lips and fingers were blue. He at this time left his employment because of his condition, but in a week's time was well enough to take some light open-air work. He,

however, never felt well. He was done up every night. He frequently had cramps in the legs and once or twice vomited dark green stuff. On May 19th he went home feeling very ill. He vomited and was very sick. He was dizzy, "light-headed and raving." He had pains in the head and limbs, and his urine was "like porter." His skin and eyes were much yellower than usual. This condition continued until he was sent into the infirmary on May 25th. After admission he showed no sign of improvement but each day the jaundice got deeper; the rambling and excitement were more marked. He became comatose and died on May 29th. The blood was examined by Dr. R. H. Walton, the senior house surgeon, who found the number of red cells and the amount of hæmoglobin normal.

Necropsy.—The post-mortem examination revealed several unusual features. The yellowness of the hands produced by contact with the bi-nitro compounds had not worn off, although the lad had been away from the work over four weeks. His gums were greenish-yellow and his palate had a yellow discolouration. On the lower costal cartilages on both sides were minute ecchymoses. The heart weighed 10 ounces and was pale and flabby. The colour of the blood was darker than usual. The liver weighed one and three-quarter pounds. It was rather soft in consistence and there was grey mottling on the upper surface of the right lobe. It was generally paler, especially the right lobe. On the under surface were several small paler areas, apparently fatty. On section, the whole of the interior had a peculiar yellowish-green mottling and appeared to be fatty. The liver substance was very friable, easily breaking down. The gall-bladder contained about six ounces of dark thick bile. The spleen weighed five and three-quarter ounces; it was more mottled in appearance than usual. The kidneys each weighed seven ounces; they were mottled, pale, and fatty. The mesenteric glands were enlarged and dark. On the mucous membrane of the intestines and the bladder were numerous minute ecchymoses. None of the organs were bile stained. Samples of the urine were sent to the Clinical Research Association who reported that they could find no trace of nitrobenzene nor could they find leucin or tyrosin or bile. The brown discolouration they attributed to the presence of a marked excess of indican. At the inquest evidence was given to show that the lad had worked amongst various bi- and tri-nitro compounds (bi-nitrobenzene, bi-nitrotoluol, and tri-nitrotoluol). Specimens of the liver and kidney and samples of the blood and urine were forwarded to Dr. W. Malden, Pathological Laboratory, Cambridge, who kindly sent the following report:—

Report on Specimens from the Patient.

Liver.—Deep yellow mottling round the bile-ducts; some large patches resembling acute yellow atrophy. Specimens too much macerated to cut sections from. Liver contains no excess of iron.

Blood.—Dark purple-brown colour. Spectroscopically gives band of met-hæmoglobin. Microscopically, differential leucocyte count per cent.: eosinophils, 1; polymorphonuclears, 50; large mononuclears, 5·5; lymphocytes, 43; mast, 0; nucleated red cells, 4 seen; myelocyte, 1. Great variations in size of red corpuscles. Some poikilocytes. A fair number of basophil reds and some polychromatophils.

Urine.—Rich brown, clear. Reaction faintly acid. Specific gravity, 1020 at 60° F.; albumin, distinct trace; sugar, none; bile, slight trace; free urobilin, considerable quantity chemically and spectroscopically; free di-nitrobenzol, none. Microscopically, much epithelial débris, flat, squamous, cylindrical, and goblet cells. Casts, a few epithelial casts. Blood and pus cells, a few.

Opinion.—In my opinion this case is undoubtedly one of chronic poisoning by some body of the nitrobenzene series. The clinical history is clearly in favour of this diagnosis. History of three months' work in chemical manufacture of di-nitrobenzol and other allied compounds. Twice off work during that time from symptoms of poisoning. State on admission to hospital: cyanosis, vomiting, jaundice, dark urine, dyspnœa.

Post-mortem appearances.—Liver resembling acute yellow atrophy. Heart pale and fatty. Intestines ecchymoses. Kidneys enlarged and fatty degeneration. The specimens I have examined confirm the diagnosis. The blood and urine are most characteristic. The only points which are not in favour of bi-nitrobenzol poisoning are these: 1. There was no anæmia (red corpuscles counted normal). 2. There was no increase of iron in the liver. These, however, cannot outweigh the balance of probability in favour of bi-nitrobenzol poisoning as shown by all the other appearances.

WALTER MALDEN, M.D.

Remarks.—So far as I know, no case exactly resembling this has been described before, but there can, I think, be no doubt about the diagnosis. The only other thing that it could be is ordinary acute yellow atrophy. Probably the hepatic degeneration closely resembled that which takes place in this disease but that it was acute yellow atrophy and nothing more is rendered unlikely by the following facts. In acute yellow atrophy the gall-bladder is empty. In this case it contained six ounces of bile. In acute yellow atrophy many of the organs are bile-stained. There was no bile-staining at all. In acute yellow atrophy there is almost invariably leucin or tyrosin or both in the urine. In this case these were both absent. Besides, as Dr. Malden points out, the clinical history, the history of work amongst bi-nitro compounds, the fact that he had suffered on three previous occasions from acute bi-nitrobenzol poisoning all point to the probability of the case being one of chronic bi-nitrobenzene poisoning.

Huddersfield.

A CASE OF FOREIGN BODY IN THE LEFT BRONCHUS.

BY H. A. MOFFAT, F.R.C.S. ENG.

THE patient in this case was a policeman, about 35 years of age, whose previous medical history was unimportant. I first saw him on May 29th, 1908, when he told me that six days previously he went to sleep with a piece of chewing gum in his mouth. He woke up with a fit of violent coughing and with some shortness of breath and he found that the gum was gone. For a day he thought nothing of it, but as the cough persisted he saw his medical attendant; though advised to go off duty he refused to do so. The cough persisted, there was wheezing in his chest, and he was short of breath. There was pain on the right side over the second intercostal space. On the next day he was shivering and feverish. A troublesome cough with expectoration of unpleasant tasting muco-pus persisted; he was short of breath. On the 29th he was sent to me.

The patient was a well-developed and well-nourished man. There was a strained, anxious look about his face, his breathing was slightly laboured, and his lips and ears had a bluish tint; he had a frequent clanging cough. There was audible wheezing. The temperature was normal. The larynx and vocal cords were normal. The right side of the chest moved a little less freely than the left; there was no loss of resonance; vocal fremitus was normal. The air entered well all over. A loud rhonchus was heard at the end of inspiration and of expiration all over the chest, but was loudest on the right side just above and inside the right nipple. The voice sounds were normal. I found that a piece of chewing gum like the one which he had lost gave no shadow with the x rays. The patient said that he had often chewed a piece for two days without any appreciable diminution. Apparently the composition is a little pepsin, sugar with peppermint, with guttapercha, which forms the great bulk of the gum.

I advised the patient to go into hospital, but it was not until the next day that arrangements were made. He was admitted just after a rigor and had a temperature of 103° F. Just after admission he vomited; in the vomit were about two ounces of thick muco-pus. He was put on expectorants and a kettle was kept going, as I decided to wait and to see if the temperature would go down. On the 31st the temperature had fallen and he felt better; the slight dyspnœa and cough were unchanged. The rhonchus was heard only occasionally, and then only on the right side below the right nipple; the percussion note in the right axilla was a little flat. On June 1st there was no change; the temperature ranged from 99° to 100°. I advised a tracheotomy and a search from the wound, but he wished to put this off, having an idea that the gum would disintegrate; he had coughed up a piece of about the size of a pin's head. In the afternoon he had an attack of dyspnœa,

after which the rhonchus was loudest on the left side, though it was audible on the right. On the 2nd the condition was the same as it had been the previous night, except that he looked more drawn. He now consented to the performance of an operation.

A low tracheotomy under eucaine and adrenalin was done; while waiting after the injection I examined his larynx with the laryngoscope as he thought there was something there, but it was normal. His head was brought over the edge of the table and supported in an over-extended position. Dr. H. A. Engelbach retracted by means of a suture on each side passed through the end of the centre of the cut cartilages. After cocainising the trachea I was able to pass a Kelly's male cystoscope easily and with a forehead light examined the trachea and bifurcation of the bronchi; the right bronchus was readily entered and nothing was found. The left bronchus was also readily entered by pushing the lower end of the trachea to the left with the lower end of the tube, and so the mouth of the left bronchus was exposed. At the lower end of the left bronchus a large plug of mucus was seen. There was some difficulty in wiping this away and coughing also caused much waste of time. When I at length got the mucus away the gum was clearly seen in the lower division of the left bronchus, the entrance of which it appeared to fill. At this stage in manipulating a swab I succeeded in breaking my only useful forceps—a urethral crocodile forceps. I tried to get a wire with a small hook at the end past the gum but there was no space. So Dr. Engelbach and I adjourned while we sent to Messrs. Mayer and Meltzer for another forceps; the man wanted to get it done. When the forceps came I again cocainised the trachea and bronchus and was soon able to get hold of the gum, but after pulling it up an inch it gave and I found a small piece only in the forceps. Now, however, the gum was in the main bronchus and I was able to pass my hooked wire past it as there was a space between it and the wall of the bronchus. I dragged it up to the speculum, and as it was too large to come through this, withdrew the speculum, the wire, and the gum together. A search in both bronchi showed no other piece. I sewed up the trachea with catgut and left part of the superficial wound open. The man had borne the operation well; he had been on the table three hours, a good deal of this time being spent in waiting. Recovery was uneventful. The piece recovered weighed about 9⅛ grains.

The principle upon which I acted was that of the bronchoscope. As soon as the case came to me I endeavoured to get a bronchoscope but was unable to do so. Messrs. Mayer and Meltzer have since made one for me, but I could not wait for it; and in any case the lower bronchoscopy which I employed would seem to be safer and easier except in very expert hands. The Kelly's cystoscope tube did very well as a speculum and was just long enough to reach the gum, which was 6½ inches from the tracheotomy opening. The urethral forceps was very convenient. The wire was the stylet of a silver catheter and was fairly rigid; I had bent a small hook on the end. It was surprising to find how clearly one could see the trachea, the bifurcation of the trachea, and the bronchi, with their divisions. From the physical signs we judged the body to be in the right bronchus at first, but we thought that it had been coughed up and had fallen into the left bronchus on the day before the operation.

Cape Town.

AN OUTBREAK OF COW-POX.

BY ALAN B. GREEN, M.A., M.D., B.C. CANTAB.,
BACTERIOLOGIST-IN-CHARGE, CALF VACCINE DEPARTMENT, LISTER INSTITUTE OF PREVENTIVE MEDICINE.

THE following is of interest inasmuch as it is a record of a somewhat unusual occurrence—namely, an outbreak of cow-pox in a herd of milch cows. The herd is the property of a farmer in Hertfordshire.

During the middle of March of the present year it was noticed that the teats of several of this herd of cows were cracked or "chapped." This was attributed by the farmer to the east winds which were prevalent at the time, and no importance was attached to it as similar lesions are not infrequent among cows in the early spring. About two weeks after these cracks appeared definite sore places began to develop on the same areas. 25 out of a herd of 27 cows were affected in this way. On April 6th the farmer, a man of about 50 years of age, noticed sore places on both his hands. Both hands became severely inflamed, in consequence of which he consulted Dr. Daniel Wilson of Bushey Heath. The right hand was more affected than the left. Dr. Wilson found papular areas on the fingers and palmar and dorsal surface of the right hand, and one or two papules on the left hand, accompanied by extensive œdema of the surrounding subcutaneous tissues and redness of the neighbouring skin. The axillary glands were also enlarged. A day or two later one or two similar papules developed on the patient's forehead and one on the upper lip accompanied by local swelling and redness and considerable constitutional disturbance. Three or four days later all the papules developed a vesicular stage, the vesicles showing umbilication and presenting the appearance of vaccine vesicles of a severe type. A clear fluid resembling the discharge of vaccine vesicles exuded from the vesicles, and their subsequent course was identical with that of vaccinal lesions of a severe and prolonged attack of generalised vaccinia. The farmer himself had milked the cows and washed their udders. He had not been vaccinated in the ordinary way since childhood.

On April 16th the farmer's son, aged 26 years, who had attended to the cows affected with sore teats and had washed their udders, noticed that both his hands were uncomfortable and on the 17th and 18th papules developed on the palmar and dorsal surfaces, the right hand being considerably more affected than the left. The papules were accompanied by severe local œdema and redness of the surrounding skin. Lymphangitis was set up in the right arm and considerable enlargement of the axillary lymphatic glands, while the temperature of the patient rose to 104° F. on two evenings. The papules became vesicular, showing the distinctive appearance of the vesicles in a case of generalised vaccinia, and their subsequent course was typical of that condition. The patient had not been vaccinated since infancy. On May 17th he allowed me to vaccinate him on his left arm. No vesicle or even papule resulted. The vaccine used was the calf vaccine series which was being issued at the time from these laboratories for human vaccination. The results obtained by medical men with this series are shown by the schedules which have come to hand to be: case success 100 per cent. and insertion success 99·7 per cent. No failures have been reported on any schedule. It may be assumed therefore that the patient on the 17th was immune to vaccination.

On May 1st a farm labourer, aged 39 years, who had been engaged in milking the cows, developed two papules on his right hand. This case followed the same course as the two preceding cases, except that the disease was very much milder. This man had not been previously vaccinated since infancy.

On May 8th another farm labourer, aged 32 years, developed a papule on his right hand. His case was parallel with the one last mentioned. He had not been vaccinated since infancy.

It has been ascertained lately that while the farmer and his son were ill three other cow-milkers said that they had sore fingers on the right hand. Apparently no vesicular stage occurred in these cases, but as their hands were not examined at the time little or no value can be attached to their condition. All the foregoing persons are right-handed.

Only one milker, an old man, says that he has had nothing the matter with his hands.

Bacteriology.—Aerobic and anaerobic cultivations showed the presence of staphylococcus aureus and albus only in the pathological material available—namely, the exudate from the vesicles of the farmer's son's hand. These micro-organisms, as is well-known, are those generally obtained from the vaccine lymph of humans and of animals.

Animal experiments.—For these also the only available pathological material was fluid exudate from the vesicles of the farmer's son's hand. Two guinea-pigs inoculated with this fluid developed typical vaccine vesicles three and four days later at the site of inoculation. Two weeks later these guinea-pigs were inoculated with highly potent calf vaccine and no specific reaction was noticed as a result. A calf inoculated with the fluid from the farmer's son's hand developed typical vaccine vesicles. It was not practicable to vaccinate this animal subsequently with calf vaccine. The vesicles which

appeared as a result of this vaccination were collected and a portion of the resulting emulsion was inoculated on a second bovine. This animal also developed typical vaccine vesicles at the site of inoculation.

It seems evident that the pathological condition which affected the men's hands and the cows' udders was vaccinia. Endeavours have been made to ascertain how the condition first appeared in the cows but so far without success. No persons attending the cows had been vaccinated recently nor had any member of their families. The only other disease noticed among the farm animals was a few cases of foot-rot in sheep; and, from the experiments which I have made, foot-rot material inoculated on guinea-pigs, calves, and goats, not only sets up no pathological condition resembling vaccinia, but affords no protection against subsequent inoculations with calf vaccine.

The farmer states that his cows have on previous occasions suffered from sore teats, but according to his observations in not the same manner as on the present occasion. There is a possibility, therefore, that the vaccinia may have been endemic on the farm for some time. But the fact that no cow-men have contracted vaccinia previously contradicts such a supposition.

I am greatly indebted to Dr. Wilson, under whose care were all the patients, for his kindness in affording me readily every facility for investigation in his power and for much valuable help; and to my colleague, Dr. A. T. MacConkey, who during my brief absence from work was notified of the outbreak, for generously handing over the matter to my department on my return to Elstree.

ON A LOCALISED OUTBREAK OF SCARLET FEVER PRESUMABLY ATTRIBUTABLE TO INFECTED MILK.

BY SIR CHARLES A. CAMERON, C.B., M.D. R.U.I.,
MEDICAL OFFICER OF HEALTH OF DUBLIN.

THE city of Dublin is intersected by a river, and the population of the northern side is slightly over 142,000. The population of the southern side is about 160,000. From July 1st to August 12th, 1908, 28 cases of scarlet fever occurred in the northern division and nine cases in the southern division of the city. On the south side the cases were widely separated. On the north side ten cases of scarlet fever were notified up to July 24th; they were pretty widely distributed. From July 27th to August 8th 16 cases were notified, all occurring within a radius of less than three-quarters of a mile. Of the patients two were adults and 14 were children. In each of two houses there were three cases of the disease; in the remaining ten houses there was one case in each house. In the district there were many dairies, but every one of the patients had used the milk of only one dairy, the owner of which resided in the centre of the affected area. The dairyman's establishment consisted of himself, his wife, nine children, and two workmen. His wife had a sore throat but not a severe one. One of the workmen had severe tonsillitis and was feverish. I found him in bed and had him removed to hospital, where he was kept under observation. No desquamation of cuticle took place. When I saw him there was no rash out and he said that he was ill only two days. The other workman had a slight sore throat. The cows of this dairyman were on pastures situated about three miles from the city. The men, together with the workmen of four other dairymen, slept in two houses near the pastures. Inquiry failed to discover that any of these men had recently been suffering from scarlet fever. These houses were occasionally slept in by other persons than the employees of the dairymen who were there when the outbreak of scarlet fever occurred. The cows were examined and found to be free from disease. A physician called in by the proprietor of the suspected dairy examined the whole family and certified that they were not suffering from any infectious disease. In these circumstances I could not prevent the sale of milk from the dairy. The houses in which the workmen had slept were, however, thoroughly disinfected, as were also the dairy and its churns and other utensils, as well as the dwelling house. To these operations the owner at once agreed.

The 16 cases of scarlet fever occurred in 12 houses. Although they were in the same district, yet the infected houses were not very close together, and there was no reason to suspect that the later cases were the result of antecedent ones by direct contagion. In attributing this localised outbreak of scarlet fever to the use of infected milk it would be more satisfactory if it could be shown that amongst the persons connected with the dairy one of them had suffered from scarlet fever. Still, it is in the highest degree improbable that 16 cases of scarlet fever should occur amongst persons using the milk from the dairy in question if the milk were free from pathogenetic micro-organisms. As large quantities of milk were sent out from this dairy it may be thought why were there not more than 16 cases of disease amongst the large number of persons supplied. It does not, however, follow that the whole of the milk was infected, and even if some persons drank the infected milk it does not follow that they must inevitably have contracted the disease. Some of them may already have had an attack of scarlet fever, others might not have been in that state of receptivity which is necessary before infection can develop into disease. On August 10th two children in one of the two houses in which, on August 4th, three cases of scarlet fever occurred were notified to have the disease. It seems more likely that these children were infected by the children who were infected by the milk. On August 24th it was notified that a second case had occurred in a house in which on July 27th a child was ill with the disease who had drunk the milk which I believe was infected. This last case was no doubt the result of the antecedent one in the same house, for in this instance and in nearly all the others the patients were not brought to hospital and being in good circumstances were attended to in their homes.

Dublin.

A CASE OF ECTOPIC GESTATION ON THE GOLDFIELDS.

BY R. STANLEY TAYLOR, M.R.C.S. ENG., L.R.C.P. LOND., B.A., M.B., B.C. CANTAB.,
MEDICAL OFFICER TO THE NANNINE HOSPITAL; MEDICAL OFFICER OF HEALTH OF NANNINE, WESTERN AUSTRALIA.

I WAS called 14 miles to a patient, a married woman, 39 years of age, who was said to be dying, and arrived at 1.30 P.M. on May 5th, 1908, when I found the patient slightly cyanosed and pale and complaining of pain in the abdomen and inability to move. On examination per abdomen I found, in a fat woman, pain in the left iliac fossa accompanied by tenderness but without rigidity. No tumour was anywhere palpable. Per vaginam a soft tender swelling filled the posterior and both lateral fornices. The pulse (94) was small but very strong and regular. The temperature was 99° F. On inquiring into the history of the present condition I was informed that during the previous night (May 4th) the patient, who had been quite well all day, awoke with severe pain in the left iliac fossa. She felt sick and faint but neither vomited nor fainted and the pain gradually became easier, though it was still too severe the next morning to allow her to move. The menstrual history showed that the catamenia began at the age of 17 years; they were regular, lasting four days, and recurring every 28 days. The patient was married at 19 years and had her first child before she was 20. She had had altogether 11 children. Two (Nos. 4 and 6) were stillborn and three died aged respectively 12 months, 14 months, and 2½ years, the cause of death being "teething," "diphtheria," and "teething" respectively. The youngest child was 18 months old. The patient had had three miscarriages, the last being three years ago. She last menstruated a fortnight previously (April 20th) and noticed that the amount was excessive. I diagnosed ruptured ectopic gestation and the treatment consisted of absolute rest in bed and opiates.

On May 14th I was called out at 12.10 A.M. and owing to bad roads and a tired horse arrived at 3 A.M. The patient then said that she had been steadily recovering till the evening of the 11th, when she had had another attack similar to the first but had recovered from it. On the evening of the 13th she had had a third attack and when I

arrived I found her extremely pale with thin, feeble pulse, which was regular and 88; the temperature was 97·5° F. The tumour in the fornices was as before and there was also a tumour in the left iliac fossa of about the size of a cricket ball; there were great pain and tenderness. Obviously the expectant treatment could not be risked any longer, nor did it seem to me reasonable in view of the premises (four rooms for a man and his wife and six children, one of whom was an imbecile, not to mention dogs, cats, goats, ducks, and chickens) to operate at the patient's home. I injected a quarter of a grain of morphine hydrochloride and four hours later repeated the dose and ordered the patient to be brought in to Nannine on a bed slung in a cart. I telegraphed for a colleague (Dr. Young) to give an anæsthetic and when he came, at 12 noon on May 15th, I operated with my wife and two nurses assisting me.

The tumour now reached half-way to the umbilicus and right across the abdomen. I opened the abdomen in the mid-line and the sheath of the rectus a quarter of an inch from the middle. Immediately below the peritoneum I saw a black mass; I opened the peritoneum, raised the omentum and the transverse colon, and evacuated two and a half pints of black blood and clot. Practically there was no bleeding at the operation. The left tube was found at a distance of one and a half inches from the uterus burst and ragged in its superior aspect; the inner, exposed, ragged surface of the tube was one inch long and three-quarters of an inch in breadth. The embryo could not be found nor any bleeding point. The patient was now cold and pulseless. The tube was ligatured on each side of the rupture and the peritoneum was rapidly closed, as well as the sheath of the rectum, the subcutaneous tissue and the skin, and the patient was put back to bed at 1.30 P.M. A two-pint infusion of normal saline solution was run slowly into the rectum and this was repeated on the following day, the foot of the bed being raised. On the day after the operation the temperature was 100°, falling to normal on the following day and never rising above this afterwards. On the tenth day the stitches (continuous silk) were removed from the skin and a small amount of golden serum was found in places. The skin edges had not healed and were approximated with grid-iron indiarubber plaster and in a fortnight from the date of the operation had healed. On July 7th the patient was getting about again and feeling quite well but was not allowed to work.

Had an abdominal surgeon been obtainable I should not have attempted this operation, though its happy result, due, I think, to the large amount of work which Mr. F. C. Wallis generously gave me to do when I was house surgeon to him, has justified it.

Nannine, J. P. Murchison District, Western Australia.

Reviews and Notices of Books.

Adenomyoma of the Uterus. By THOMAS STEPHEN CULLEN, Associate Professor of Gynæcology in the Johns Hopkins University; Associate in Gynæcology in the Johns Hopkins Hospital. Illustrated by HERMANN SECKER and AUGUST HORN. London and Philadelphia: W. B. Saunders Company. 1908. Pp. 270. Price 21*s.* net.

THE interesting group of tumours known as adenomyomata of the uterus of late years have been studied by a number of workers in gynæcology with the result that our knowledge of their structure and mode of origin is much more complete than it was. In the year 1903 Dr. Thomas Cullen, in a review of the literature published in Professor Orth's "Festschrift" reported 22 cases of this kind which he had studied personally. Since that date he has paid special attention to these tumours and in a series of 1283 cases of myoma examined he found no less than 73, or about 5·7 per cent., instances of adenomyomata.

It was in the year 1896 that the important work of von Recklinghausen first drew attention to this curious variety of tumour composed of gland elements and myomatous tissue. At that time, after a careful consideration of all the published cases, von Recklinghausen thought that the glandular elements were derived from the Wolffian ducts. This opinion was based upon the supposed close analogy between the elements of the Wolffian ducts and the glandular structures present in adenomyomata of the uterus. In only one case did he find that the glands were derived from downgrowths of the uterine mucous membrane.

In his previous work on this subject, published in 1903, Dr. Cullen brought forward a good deal of evidence to show that the glands occurring in these tumours were derived in reality from the mucous membrane of the uterus, and his further investigations have tended to demonstrate the truth of this view. Of 50 uncomplicated cases of diffuse adenomyomata of the uterus in every one he has been able to trace the uterine mucosa extending into the myomatous tissue. In five out of six cases of adenomyoma of the uterus, complicated by a squamous-celled carcinoma of the cervix, the origin of the gland elements in the myoma could be traced to the uterine mucosa. Not only in the great majority of cases can such an origin of the gland tissue be established, but that these glandular spaces are in reality portions of the uterine cavity is shown by the fact that often they contain blood evidently menstrual in character, and in a few instances decidual changes have been conclusively demonstrated in them.

We think that no one can read this book without becoming convinced that the author's view as to the nature of these tumours is the correct one. Not only has Dr. Cullen shown that von Recklinghausen's theory is no longer tenable but he further points out that there is a very definite clinical history associated with these tumours. Increased loss at the menstrual periods is accompanied in typical cases by grinding pain in the uterus which is attributed to increased tension, since the islands of mucosa scattered throughout the diffuse myoma swell at the menstrual period and thus increase the size of the organ. As a rule there is no intermenstrual discharge, as the uterine mucosa is usually quite healthy. The tumours are essentially benign and there is no risk of their recurrence after removal.

This book is a good example of how such a monograph should be written. A large number of cases are recorded in sufficient detail to enable the reader to draw his own conclusions, there are a number of beautiful illustrations, and the results of the author's work are clearly and concisely summarised. This is an excellent work worthy of the high reputation of the author and of the school from which it emanates.

The Theory and Practice of Hygiene (Notter and Firth). Revised and largely re-written by R. H. FIRTH, Lieutenant-Colonel, R.A.M.C., formerly Professor of Hygiene in the Royal Army Medical College; now Officer in Charge of the School of Army Sanitation, Aldershot, &c. Third edition. London: J. and A. Churchill. 1908. Pp. 993. Price 21*s.* net.

ALTHOUGH this volume is nominally the third edition of "Notter and Firth," there has been such a re-arrangement of the subject matter and such a re-writing of the chapters that it constitutes what is practically a new work by Lieutenant-Colonel Firth. The author has had, as all writers who endeavour to combine the science and law of public health appear to have, considerable difficulty in deciding how to treat sanitary law, but although he may not altogether have succeeded in solving the problem he has, we think, made a useful advance. In former editions sanitary law was dealt with separately; in this the general legal provisions appertaining to sanitary authorities are treated of in the first chapter; while the law relating to special subjects, such as water and milk, is dealt with at the end of the chapters dealing with these subjects. In this

way the reader is able to learn the legal provisions of a subject while its other aspects are fresh in his mind. But as legislation was busy during 1907 it became necessary to introduce a separate chapter under the heading of "Recent Sanitary Legislation."

The book as a whole is a thoroughly comprehensive one and its scope is naturally wider than is the case of the smaller text-books. In the chapter on water analysis we are glad to see the author placing in the forefront the importance of "a careful local inspection" of the source. We wish that all analysts would take this view, as we might then hear of fewer instances of water passed by the analyst causing outbreaks of disease. The chapter on air is thoroughly up-to-date, and the author discusses the influence of temperature and moisture in producing the ill-effects experienced in overcrowded atmospheres. Considerations as to food are dealt with in exemplary fashion, but in the section dealing with the law relating to the milk trade we do not find reference to the important powers obtainable either under the Infectious Disease (Prevention) Act, 1890, or under what are known as the Liverpool or Manchester Milk Clauses. We do not quite agree with some of the author's comments as to the difficulty in obtaining regulations under the Dairies, Cowsheds, and Milkshops Order, and it is not, we think, at all common to employ police officers for the inspection of dairies. One of the most valuable chapters in the work is that devoted to parasites. The section devoted to the protozoa is most helpful and the numerous plates are excellent. Some of Lieutenant-Colonel Firth's views as regards tuberculosis will invite the criticism of those who claim for the disease a high infectivity. The author's opinion is set forth as follows: "We ourselves are disposed to think that bovines are the main source of tuberculosis in man, and that the theory of infection by inhalation rests upon imperfect knowledge; we are convinced that this method of contracting the disease is rare." In the matter of statistics this volume is in advance of any other book on public health as considerable space is devoted to the methods used by Professor Karl Pearson in his biometrical studies.

The chapters on military and naval hygiene will be very welcome to all service men, but we have been wondering as we read these pages whether it might not be possible to have two separate issues of this admirable volume—the one for service men, the other for non-service; this latter volume omitting the military and naval hygiene and substituting therefor a fuller discussion of sanitary law. But the book is certainly one which ought to be possessed by all who are interested in public health.

Manual of Medical Jurisprudence, Toxicology, and Public Health. By W. G. AITCHISON ROBERTSON, M.D., D.Sc. Edin., F.R.C.P. Edin., F.R.S. Edin., Lecturer on Medical Jurisprudence and Public Health, School of Medicine, Royal College of Surgeons, Edinburgh. With 39 illustrations. London: Simpkin, Marshall, and Co., Limited. 1908. Pp. 560. Price 8*s.* net.

Dr. Robertson has succeeded in compressing into a moderate compass a large amount of information on the subjects of medical jurisprudence, toxicology, and public health. The various facts are clearly stated, and the conclusions to be deduced from them are ably expressed.

In the first chapter criminal procedure is described, especial attention being directed to legal procedure in criminal cases in Scotland which differs somewhat from that which is followed in England and Ireland. The rules of evidence are briefly considered, and some useful rules to be observed in giving evidence are supplied. The effect of skilled evidence much depends upon the way in which it is delivered. Accuracy and non-indulgence in highly scientific phraseology are essential. Nothing makes so bad an impression on judge and jury as a medical witness who forgets important details, such as dates, names, sequence of symptoms, and so on; whilst the too free use of scientific terms may easily confuse the court. We well remember the temporary embarrassment of a medical witness when asked by the judge to explain to the jury the meaning of the word "neurotic."

The chapters dealing with the performance of medico-legal post-mortem examinations and the causes and signs of death are well written and give a clear account of the subject. We cannot altogether agree, however, with some of Dr. Robertson's remarks on suspended animation and apparent death. We think that, unintentionally no doubt, he exaggerates the possibility of the latter. We do not consider that he gives sufficient proof of his statement: "Authentic cases of supposed dead persons rising from the coffin are numerous." If such cases were submitted to careful scientific analysis we believe that probably the large majority of them would be proved to have been erroneously reported. Brouardel's remarks on this subject are reassuring: "A person dies; he is carried to an apartment called the 'mortuary chamber' ..... and a bell-rope is placed in his hand. ..... Gentlemen, from the time that mortuary chambers were instituted—and that at Weimar dates from 1792—neither at Weimar nor at Munich ..... nor anywhere else, I believe, has anybody ever rung that bell."

The subject of the medico-legal aspect of wounds is considered in an interesting manner, gunshot injuries being especially well described. The portion of the book dealing with toxicology contains a consideration of all the important poisons, and the symptoms, post-mortem appearances, tests, and treatment are accurately given.

The third section—namely, the one on public health—contains a large amount of information on ventilation, heating, water-supply, house sanitation, sewage, and also remarks on infectious diseases, vital statistics, meat inspection, and, finally, some observations on sanitary administration and sanitary law.

This manual contains all that is necessary for the student to know in regard to the above subjects for the ordinary pass examinations in the final subjects. For the higher examinations a larger work would be necessary. Dr. Robertson has an easy style of writing which will attract the student's attention and will render the study of medical jurisprudence and public health a pleasing one.

Les Ferments Métalliques et leur emploi en Thérapeutique. (*Metallic Ferments and their Use in Treatment.*) Par ALBERT ROBIN, Professeur de Clinique Thérapeutique à la Faculté, Membre de l'Academie de Médecine. Paris: J. Rueff. 1907. Pp. 252. Price fr. 4.

IN 1901 Professor Robin published some observations concerning the therapeutic action of certain metals in a state of very fine division, an action which he states is remarkably like that of the organic ferments. This fact has led him to refer to the substances which he has employed as metallic ferments. He uses chiefly the following metals: gold, platinum, silver, and palladium in a "colloidal state." These preparations are easy to obtain but difficult to preserve. The method of preparation is simply to allow a series of electric sparks to pass between two electrodes of the metal which it is desired to use through a small quantity of pure sterilised water in a porcelain capsule. A current of three or four ampères with a voltage of 110 is said to give the best results. At each spark a small cloud appears which rapidly disappears in the liquid. Gold gives a violet-coloured solution, silver a brown,

dichroic solution, while platinum and palladium give black solutions. It is not possible to obtain more than a certain strength of solution by such means, and when this is reached the metallic cloud no longer dissolves. At this stage the solution is filtered through fine filter-paper. The liquid must not be sterilised by heat or by means of bacterial filters, as both these procedures destroy its ferment actions, the addition of salts to render it isotonic is also said to diminish its activity, but the utmost care must be taken in preparation to insure sterility. The solutions employed by Professor Robin contain about 30 milligrammes of metal per litre. Examined microscopically no particles are seen, but by means of the ultra-microscope a number of luminous points can be observed. The properties of the solutions appear to be identical in the case of the different metals used except that from the therapeutic point of view those of palladium are the most active. Somewhat similar solutions can be obtained by chemical methods. Professor Robin claims that these substances produce effects in the body similar to those of organic ferments and to those of certain therapeutic serums. He states that all these substances increase the formation of urea, of uric acid, and of urinary indoxyl, that they augment the co-efficient of nitrogenous utilisation without increasing proportionately the oxygen absorbed by the organism. They further affect the hæmopoietic organs, causing a true leucolysis of the polymorphonuclear cells, especially in those conditions where they are increased in number while they augment the numbers of mononuclears. They also exert a microbicide action.

Professor Robin has employed these solutions in a variety of conditions, notably in the treatment of pneumonia, in which disease he claims that they lower the temperature, raise the arterial tension, and often accelerate the crisis, and that if employed sufficiently early they diminish the mortality. He gives details of his methods of treatment in that disease. He administers the bichlorhydrate of quinine in doses of 0·3 gramme night and morning throughout and gives several small doses of calomel. On about the second day of the disease he injects subcutaneously ten cubic centimetres of the solution of the metallic ferment, and this is repeated every day. Pyramidon is also given at night. About 24 hours after the first or second injection a large blister is placed over the site of the pneumonia. It is difficult to estimate the effect of these so-called ferments in this somewhat complex method of treatment. Professor Robin has treated 95 cases on these principles, 47 being of severe nature, and has had a mortality of 13·68. In 70 per cent. of the cases the defervescence occurred before the eighth day. Details are given of the use of these substances in many other diseases, but the accounts hardly seem to lead to any striking conviction of their usefulness.

LIBRARY TABLE.

The Edinburgh Stereoscopic Atlas of Obstetrics. Edited by G. F. BARBOUR SIMPSON, M.D. Edin., F.R.C.P. Edin., F.R.C.S. Edin., Senior Assistant to the Professor of Midwifery in the University of Edinburgh; and EDWARD BURNET, B.A., M.B., Ch.B. Edin. With a preface by Professor Sir J. HALLIDAY CROOM, M.D. Edin., F.R.C.P. Edin., F.R.C.S. Edin., F.R.S. Edin., Professor of Midwifery in the University of Edinburgh. In Four Sections, each containing 25 subjects, with descriptive text. Section II. London: The Caxton Publishing Company. 1908.—The Second Section of this Atlas, a review of the first part of which appeared in THE LANCET of July 25th, 1908, p. 240, contains 25 subjects with descriptive text. The plates are mainly concerned with the anatomy of the normal pelvis and its contents and specimens of the pregnant uterus at the various months up to the eighth month of gestation. Dissections of the pelvic organs, or indeed of any kind, do not lend themselves so readily to reproduction in photographs as do the various forms of contracted pelves and the results, therefore, are not so satisfactory. The plates illustrating dissections of the female perineum, for example, show but little, and it is practically impossible to reproduce a dissection by photography in such a manner as to be of much value to the student, and the same criticisms apply to the plates illustrating the organs occupying the interior of the pelvis. For these reasons the present section of this Atlas is not likely to prove so useful as the first. The photographs are all good but the subjects are unsuitable to this form of illustration. The main features of this publication have already been noticed and no doubt in the succeeding sections the plates will be as good and useful as were those of the first section.

Rotunda Midwifery for Nurses and Midwives. By G. T. WRENCH, M.D. Lond., late Assistant Master, Rotunda Hospital, Dublin. With an introduction by the Master of the Rotunda Hospital. London: Henry Frowde and Hodder and Stoughton. 1908. Pp. 324. Price 6*s.* net.—Impressed by the difficulties which nurses of average intelligence appear to have in understanding the text-books written for their use Dr. Wrench has been emboldened to try to write a book which shall be sufficiently clear and free from technical terms as to be readily understood by any ordinary pupil midwife. On the whole he has succeeded very well. The teaching contained in this book is that given at the Rotunda Hospital, and the main elementary facts of midwifery practice are set forth in a clear, practical, and convincing manner As Mr. E. Hastings Tweedy truthfully points out in the preface which he contributes to the book, the difficulties which beset the path of a woman possessed of no technical knowledge who suddenly finds herself placed as a probationer in a large hospital are considerable, and in the case of those women who attempt to satisfy the requirements of the Central Midwives Board by a course of study outside a hospital they must be very great indeed. The art of writing a text-book for junior students or for nurses is not possessed by everyone and considerable credit is therefore due to Dr. Wrench for the success which he has attained. The teaching is dogmatic and there is no ambiguity in the methods of treatment recommended although they may not commend themselves to everyone, and the book is in many ways an epitome of the larger work recently published by Mr. Hastings Tweedy and the author entitled, "Practical Rotunda Midwifery." The author is sound in the advice which he gives to nurses as to the dangers of trusting to their personal experience in the matter of advising their patients and thereby usurping the functions of the medical attendant. In a concluding section Dr. Wrench calls attention to the important duties of the nurse in acting as an intelligent intermediary between the patient and the medical man in cases of danger, and to the fact that coöperation between the nurse and a medical practitioner adds greatly to the safety of the patient whom the nurse is attending. Some of the illustrations are not very artistic but still they are clear and should be intelligible. On the whole this is a capital little book which we can recommend confidently to nurses.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXVII., No. 3. London: C. F. Clay. August 12th, 1908. Price 7*s.*—The contents of this number are:—1. An article on the Contraction of Muscle chiefly in Relation to the Presence of "Receptive" Substances, Part II., by J. N. Langley, F.R.S. In this article the action of nicotine on the flexor carpi radialis

muscle is shown by graphic records. 2. Studies of the Relationship between Respiration and Blood Pressure. Part I.: The Effect of Changes of Intrapericardial Pressure on Aortic Pressure, by Thomas Lewis, from the Physiological Laboratory, University College, London. The author in this part shows that the heart is peculiarly susceptible of the changes of pressure external to it. In small cats the rise of blood pressure accompanying suspended or prolonged inspiration is entirely due to the change of intrapericardial pressure. In larger cats this has not been so clearly ascertained. Nevertheless, it is certain that increased diastolic filling of the heart plays a large part in causing the inspiratory rise of blood pressure in these animals. Part II.: Facts bearing on the Relationship of Different Factors in the Production of Respiratory Curves of Blood Pressure. In this part the author shows that in man a deep intercostal inspiration which is not prolonged yields a pure fall of blood pressure. A deep diaphragmatic inspiration which is not prolonged gives a pure rise of blood pressure. In expiration the reverse effects hold. 3. Note on the Supposed Existence of Vaso-constrictor Fibres in the Chorda Tympani Nerve, by W. M. Bayliss, from the Physiological Laboratory, University College, London. Mr. Bayliss, to test the statements of M. Fröhlich and M. Loewi, which seemed to demonstrate the presence of vaso-constrictor nerve fibres in the chorda tympani and therefore to invalidate the experimental results of many previous investigators, placed cats under the influence of amyl nitrite and sodium nitrite, and states that he has been unable to obtain any results which would warrant the interpretation of their being due to the pressure of vaso-constrictor fibres. Tracings are given of the action not only of animals under the influence of the above-mentioned drugs but also of pilocarpine and atropine. Mr. Bayliss appends to this article a note on the excitation of vaso-dilator nerve fibres in depressor reflexes. Various experiments are described and tracings shown, the results of which demonstrate, he believes, that in addition to the generally assumed action of the depressor nerve—viz., that it produces fall of blood pressure by inhibition of tone of the vaso-constrictor centre—there is also an excitation of the vaso-dilator nerves. 4. A Criticism of the Nitro-molybdate Method for the Detection of Phosphorus in Tissues, by G. G. Nasmith, Ph.D., and E. Fidlar, B.A., M.B. The authors agree with Bensley that the reduction of compounds of molybdenum is the cause of the blue-green colour which appears in the sections and that it is not due to the presence of phosphorus at all. This number also contains the Proceedings of the Physiological Society for June 20th and July 18th, 1908.

The Biochemical Journal. Edited by BENJAMIN MOORE, M.A., D.Sc., and EDWARD WHITLEY, M.A. Vol. III., Nos. 6, 7, and 8. August 10th, 1908. Published by the Biochemical Department, University of Liverpool. Annual subscription, 15*s.* per volume of 480 pages.—The contents of this part are: 1. The Effects of Variations in the Inorganic Salts and the Re-activity of the External Medium upon the Nutrition, Growth, and Cell-division in Plants and Animals, by Benjamin Moore, M.A., D.Sc.; Herbert E. Roaf, M.D. Tor.; and Robert E. Knowles, M.D. Liverp. The authors find that in plants a very moderate degree of acidity represses growth and stops cell-division, whilst short of the lethal dose there is marked stimulation by alkali. The kation present appears to have a specific effect and po'assium is much more stimulating than sodium to both rootlets and foliage. The phosphatic anion has a special effect upon the flower causing increase in size, irregular inflorescence and packed florets. The cytological effects are shown in numerous illustrations of hyacinth rootlets. With acid solutions there are absence or depression of nuclear division and thickening of the cell walls; with the alkalies, increase in nuclear division, changes in chromosomes, and irregular figures are visible and the cell outlines become obscured. The effects of the two agents in animals are also described. 2. An Investigation of the Toxic Actions of Dilute Solutions of the Salts of Certain Heavy Metals as Copper, Iron, Nickel, Cobalt, Manganese, Zinc, Silver, and Lead, upon the Bacillus Typhosus with a view to practical application in the purification of shell-fish, by Benjamin Moore, M.A., D.Sc., and James Leonard Hawkes, M.D. Liverp. 3. Note on the Chemical Composition and Physical Properties of Renal Calculi, by J. Sydney Rowlands, M.D. Liverp., Thelwall Thomas Fellow in surgical pathology. 4. On the Presence of an Oxidising Enzyme in the Latex of Hevea Brasiliensis, by D. Spence, Ph.D., A.I.C. 5. Experimental Evidence of the Local Production of "Opsonins," by H. Leith Murray, M.D. Aberd., R. Stenhouse Williams, M.B. Edin., D.P.H. Camb., and J. Orr, L.R.C.P. & S. Edin., D.P.H. 6. Experimental Inoculation of Meningococcic Vaccine, by R. Stenhouse Williams, M.B. Edin., D.P.H. Camb., H. Leith Murray, M.D. Aberd., and J. Orr, L.R.C.P. & S. Edin. 7. Changes in the Chemical Composition of the Herring during the Reproductive Period, by T. H. Milroy, professor of physiology, Queen's College, Belfast.

The Edinburgh Medical Journal.—In the August issue of this magazine, the second number of the new series, Sir G. T. Beatson records two cases of Intussusception in Infants in which the appendix vermiformis was included in the tumour. In one case the appendix needed removal as the result of the strangulation from which it had suffered. In an interesting paper on Vaccine Treatment in Surgery Mr. H. M. W. Gray reiterates his belief that opsonic determinations are not indispensable for the due administration of tuberculin T.R. He reports that in some 200 cases in which this remedy was used he noted six in which distinct harm resulted and a number in which no effect either way was noticeable; in the great majority good ensued. He recommends the use of tuberculin in early cases, such as enlarged glands of doubtful nature, as a precautionary measure. Dr. H. G. Langwill gives notes of two cases of Fainting Fits, apparently due to accumulation of blood in the splanchnic system, the patients being cured hy the application of an abdominal binder; and Dr. John Eason writes on Mechanical and Orthostatic Purpura and expresses the belief that many cases of this disorder are due to rupture of capillaries by simple pressure and are not toxic in nature.

The Dublin Journal of Medical Science.—In the August number appears the first part of Mr. E. Hastings Tweedy's annual report of the Rotunda Hospital. Dr. Walter G. Smith writes on Oxaluria and Phosphaturia. He shows that the oxalic acid excreted is partly exogenous and partly endogenous in origin and concludes that the appearance of this substance in the urine is of surgical interest as a component of calculi rather than of medical importance as a sign of metabolic irregularity, while the phosphoric acid of the urine is almost entirely exogenous and is only of clinical importance in the form of juvenile phosphaturia. Dr. Reginald Holmes commends Calmette's ophthalmic reaction as a valuable test for tuberculosis and Dr. A. F. G. Kerr gives a short epitome of our knowledge of protozoal diseases in man.

The Medical Chronicle.—The original matter contained in the August number of this magazine consists in a first instalment of some lectures on the Pathology of Cancer by Mr. Charles Powell White. He classifies tumours as organ tumours, or organomata, tissue tumours, or histiomata, and cell tumours, or cytomata. This classification leads to a distinction being drawn between the epitheliomata and the carcinomata, the former term being applied to various kinds

of adenoma. Throughout the paper reference is made to illustrations which are not contained in the present number of the magazine so that it is difficult to follow some of the statements made as to the histology of the new growths with which the author is dealing.

THE BRITISH MEDICAL ASSOCIATION.

SEVENTY-SIXTH ANNUAL MEETING AT SHEFFIELD.

THE SECTIONS.

DISEASES OF CHILDREN.

THURSDAY, JULY 30TH.

Sir ALMROTH E. WRIGHT (London) opened a discussion on

The Causation and Treatment of Scurvy, in particular of Infantile Scurvy.

The object of the discussion, the speaker said, should be to seek for (*a*) the pathogenic factor in the scorbutic dietary; (*b*) an explanation of the scorbutic symptoms; (*c*) for a scientific method of diagnosis; and (*d*) for a rational method of prophylaxis and treatment. With a view to eliciting the pathogenic factor in the scorbutic dietary foodstuffs might be divided into three classes: (1) acid, scorbutic (oats, barley, meat, wheat, eggs, rice, and maize); (2) non-scorbutic (sugar, vegetable oils, and animal fats); and (3) alkaline, anti-scorbutic (carrot, turnip, potato, onion, milk, blood, peas, lemon, orange, beans, and woody fibre). These were arranged in order of intensity. The acid series exhibited an excess of mineral acid over base in the ash and the alkaline series an excess of base over acid, while the non-scorbutic were neutral. This suggested that in scurvy there is an acid intoxication. Infantile scurvy was associated with a diet of cereals and sterilised milk. Milk that had been boiled clotted loosely with rennet or not at all. On the addition of calcium salts it clotted as fresh milk. They knew that when urine was boiled carbon dioxide was driven off and phosphate of lime was deposited, so that the lime was held in solution by carbonic acid. Milk which had stood for from 12 to 24 hours scarcely clotted at all in its upper layers on addition of rennet, whereas the lower stratum clotted at once, this contrast being due to separation and subsidence of lime salts. The symptoms of scurvy were pain and hæmorrhage in connexion with the periosteum and effusion into muscle sheaths. Free acid would affect the bones, and cases were known in which callus had been absorbed during an attack of scurvy disuniting a recently healed fracture. At Netley six men suffering from scurvy after the siege of Ladysmith showed a diminished alkalinity of the blood, the reaction being almost neutral. When the citrate and tartrate of sodium were administered the symptoms disappeared rapidly, while the alkalinity of the blood increased to normal. Cases of infantile scurvy showed a similar decline in alkalinity, the symptoms disappearing and the reaction becoming normal after three days' treatment with 10 grains of lactate of sodium. Potato, orange-juice, and meat-juice with lime water had affected the disease more slowly. So long as the acid could be neutralised by ammonia in the system no effect was produced on health, and this afforded a temporary defence. Later lime salts were extracted from bone and then from the blood, with manifestation of scorbutic symptoms. The objection to alkaline foodstuffs as treatment was the small amount of effective remedy contained in a large bulk. Lime-juice contained only 0·3 per cent. of citrate of sodium. Lactate of sodium was best and rendered the urine alkaline in 15 minutes. Erosion of bone required lactate of lime and magnesia; in such a condition fruit juices were objectionable as they tended to take up more lime salts.

Professor AXEL HOLST (Christiania) stated that guinea-pigs fed only on bread or oats with water died in a few weeks. After three weeks the molar teeth became loose, the gums hyperæmic, hæmorrhage occurred at the costo-chondral junction, and there was fragility of the long bones with softening and hæmorrhage at the growing ends, these changes being the same as those in adult and infantile human scurvy. Microscopically the lymphoid cells of the red marrow disappeared at the epiphyses, being replaced by a fibrillated reticulum and hæmorrhage. Real scurvy had thus been experimentally produced in guinea-pigs, and could be abolished by an anti-scorbutic diet. Professor Holst considered the acid theory was wrong but was doing more good than some right ones. Fresh boiled potato prevented scurvy, but dried potato or carrot did not do so even when soaked in solutions of calcium or sodium salts. The juice of cabbage was a preventive when fresh but not after having been kept for a month when it became acid, and addition of bicarbonate of sodium did not restore its anti-scorbutic properties. Barley soaked in water did not prevent scurvy, but if allowed to sprout it did. It was then a living plant, though the salts contained were the same. The addition of carbonate of lime or citrate of sodium to bread did not prevent scurvy, which appeared to be due to the exclusive use of food devoid of certain unknown constituents. We were accustomed to apply the word enzymes to the causes of biological effects not explained by bacteria and anti-scorbutics possessed a quality peculiar to enzymes, in that they acted in small quantities, though more powerfully in large. Guinea-pigs fed on oats and water died from scurvy; the addition of one ounce of cabbage daily prevented this. If the cabbage were reduced to one gramme daily the animals lived from six to eight weeks and died without getting scurvy. In conclusion, Professor Holst said that in seeking for the cause of this disease they must look for the unexpected.

Dr. R. HUTCHISON (London) said that the consideration of scurvy in children simplified the question by excluding a number of supposed causes, including the ptomaine theory. In them it appeared rather to be due to over-sterilisation of food. The importance of potash salts as a preventive had been over-estimated, except so far as the potassium salts of the vegetable acids were concerned. He did not agree with Sir Almroth Wright's theory. It was found that the anti-scorbutic properties of any food resided in the dialysate which comprised the crystalline portion with the potassium salts of the vegetable acids. The vegetable salts of potash were decidedly anti-scorbutic. Dr. John Thompson treating pyelitis in a scorbutic subject with citrate of potassium found the scurvy arrested. Ralfe found the anti-scorbutic foodstuffs more alkaline than the scorbutic, and Bunsen claimed that foods should have an alkaline ash to sustain life. K_2HPO_4, though unsaturated as to base, was alkaline to litmus. Dr. Hutchison considered that the ash of the scorbutic group of foods should be regarded as less alkaline than that of the anti-scorbutic rather than definitely acid. Neutralisation by ammonia would diminish acidity and would not be revealed in the ash. He cited also other instances of acid intoxication, such as that occurring in diabetes, which did not give rise to symptoms of scurvy. Citric acid actually increased the acidity of the urine and lime-juice similarly tended to diminish alkalinity. Reduced alkalinity occurred in cachexia and anæmia as well as in scurvy. The coagulability of the blood was to be taken with great caution, and was not shown to be constantly diminished in infantile scurvy, while in scurvy itself there was no constant relation between diminished alkalinity of the blood and the intensity of symptoms. He claimed that there was an unknown factor in the production of the disease still to be discovered. Very few infants developed the disease, though very many were on the same diet.

Dr. E. CAUTLEY (London) said that infants suffering from scurvy were fat and otherwise healthy. No acetone bodies occurred and he had only found the urine ammoniacal once, though this was usual with acid states. The disease was undoubtedly associated with artificially prepared food.

Sir ALMROTH WRIGHT, after replying to the arguments which had been advanced in opposition to his view, said that it was essential to know the actual cause of scurvy for its effectual prevention and to recognise the disease before the extreme phases developed. He considered that diminished alkalinity of the blood was a guide to this and should be looked for in suspected cases.

Dr. W. ESSEX WYNTER (London) read a paper on

A New Specific in the Treatment of Chorea.

After reviewing the methods formerly employed and commenting on the long duration of the attacks, he described the new remedy chloretone, which was trichlor-tertiary-butyl-alcohol. Physiologically this drug in therapeutic doses acted as a powerful sedative to the central nervous

system without depression of the circulation or respiration. For chorea he employed five grains of chloretone in half an ounce of petroleum emulsion, sometimes sweetened with glycerine, every four, six, or eight hours, according to the severity of the attack and age of the patient. With subsidence of the movements after two, three, or four days the dose was reduced to one half, and it might be given less frequently. In the series of 50 cases treated by chloretone since the autumn of 1905 the duration of the treatment averaged nine days, covering the period of choreic movement. In the majority of them four, six, or seven days sufficed, the average time having been extended by the inclusion of several in which from 12 to 20 days were required. These were instances in which the disorder had already resisted treatment for a long period—three or four months, a year and a quarter, and one three years. In the earlier cases also the drug had been given with some circumspection owing to lack of full knowledge of its effects, and he found in the present year several instances in which the drug was given for two days only in five-grain and for two days in two-and-a-half-grain doses, four days in all. As might be supposed, many children suffered in addition from valvular heart disease contracted in previous attacks of rheumatism and scarlet fever (about 50 per cent.), but in spite of this the average stay in hospital was just three weeks. As had been noticed in connexion with other remedies the most rapid improvement was met with in early cases, those coming under treatment from within a few days to a month of the onset, though the recovery of the chronic or recurrent ones was perhaps stronger testimony to the efficacy of the treatment. So far relapse had occurred in one case only after three months and though it might be hoped that a curtailment of the disorder would diminish the risk of endocarditis this could only be ascertained at a later date. Those children who were admitted with cardiac disease had all previously suffered from attacks of rheumatic or scarlet fever and showed compensatory changes in the heart but no recent endocarditis or pericarditis was observed in the others. The value of laxatives in assisting the action of chloretone, doubtless by accelerating absorption, was very noticeable, as it is with other specific remedies, two refractory cases at least responding at once when such measures were adopted. It was only fair to state that in the cases cited a most important factor was continuous rest in bed with liberal diet, the little patients being isolated by screens during the active phase of the disorder and being encouraged to do some finger work when the involuntary movements subsided as an incentive to control and as a test of steadiness before they were declared convalescent. After the movements had been subdued by chloretone steel wine with either cod-liver oil or arsenic was administered as a corrective to the anæmia and feebleness which ensued, and the children were kept under observation at a convalescent home for another three weeks. The sedative effect on the nervous system was liable to extend to a condition of stupor if the drug was given in excessive doses, too frequently or over too long a period, and in the course of treating these cases this had occasionally occurred, the child for the time sleeping profoundly till roused to take food or for other purpose and permitting the limbs or body to remain in almost any attitude in which they were placed, as in catalepsy, but without either actual rigidity or loss of muscular tone, this state passing off within a few hours of discontinuing the drug. In one or two cases a punctiform erythema had been noticed and in two of those included in this series there ensued a definite desquamation of the hands and feet but not of other parts of the body, leading in one, which was removed on account of participating in an outbreak of rötheln, to a suspicion of scarlet fever. The other child showed no rise of temperature and no erythema and his retention in hospital and subsequent transference to the convalescent home did not result in the communication of scarlet fever to other children. Stupor, erythema, and peeling of the hands and feet might be considered rare effects of the exhibition of chloretone associated probably with overdosage. The 50 cases were fair examples of the disorder in different degrees of severity and progress; some exhibited only disorderly movement, others were unable to speak or to feed themselves, and a few required padded cots on account of the violence of the movements. The previous duration varied from a few days to months, and in one case three years. The majority were first attacks, but several were second, third, or even fourth. One case only so far had been readmitted for a renewal of the movements three months after treatment. Other remedies called for by fresh rheumatic manifestations or cardiac complications might be combined with the chloretone, but for the chorea itself this drug appeared to be as much a specific as the salicylates had come to be regarded in rheumatism.

Dr. GEORGE CARPENTER (London) read a paper on

Nephritis in Infancy.

Two features stood out in conspicuous prominence. Symptoms during life were wanting and post mortem the kidneys looked perfectly healthy to the naked eye, though microscopically the changes were well marked. Even examination of the urine disclosed no evidence of the disease in some cases. Acute nephritis was certainly uncommon in infants but not so rare as was generally supposed, and was overlooked on account of the difficulty in procuring the urine for examination. This difficulty was not insuperable and might be overcome in several ways if attention was directed to the subject. When œdema was definite it was not necessarily due to nephritis, being sometimes associated with retention of chlorides and diminution in urinary secretion. Nephritis might be associated with any disorder of the gastro-intestinal tract as well as with the specific fevers. In the absence of albumin casts might be found and convulsions and coma might occur. The histological changes in the kidney included swelling with granular and fatty degeneration of the epithelium of the convoluted tubes, the nuclei staining faintly. Czerny had described round-celled areas of infiltration or collections of red blood corpuscles in the renal cortex. Micro-organisms had been found in the exudate and blood-vessels. While bacterial emboli and thrombosis also occurred in the bacterial cases, others were toxic in origin and chiefly associated with gastro-intestinal lesions. A third group unassociated with other disease might be termed primary. Syphilis was associated with round-celled infiltration, sclerosis, and later various forms of degeneration of the renal parenchyma, with more marked clinical manifestations of renal disease and collateral evidence. A considerable proportion of the cases of infantile nephritis were syphilitic, but there was reason to believe that not all the instances of interstitial nephritis occurring in young children so originated. The subject called for closer observation both to discriminate the causes of nephritis and to develop more satisfactory methods of treatment.

Mr. E. M. CORNER (London) described two cases illustrating

The Surgical Treatment of Tuberculous Glands in the Mesentery.

The first case, a girl, aged 15 years, was said to have had three attacks of appendicitis in two years, with continuance of abdominal pain and tenderness. Appendectomy was performed, the apex being fibrous and adherent both to the iliac fossa and a coil of small intestine. A soft caseous gland of the size of a walnut occupied the ileo-cæcal junction. This with three or four more glands lying along the inner side of the ascending colon were removed and were found to be more calcareous as they ascended. The appendix was obliterated at the tip but presented no signs of ulceration, scarring, or disease in the rest of the organ. The second case, a girl, aged four years, came under observation for a round lump discovered accidentally in the abdomen. There were no symptoms. The mass was rounded, painless, and moveable, lying in the left iliac region; it was found to be in the mesentery of the small intestine and with another similar one was incised and evacuated of caseous matter. Both cases recovered rapidly and presented no subsequent symptoms. The lessons to be learned from these cases were: In adults tuberculous glands were most frequent in the ileo-cæcal region. They rarely formed a palpable tumour. They were frequently associated with appendicitis; less frequently with intestinal obstruction. When caseous they gave rise to pain and discomfort. They were one of the causes of abdominal pain which were only ascertained on exploration. In young children tuberculous glands were usually found in the mesentery of the small intestine. Some cases were much improved by surgical treatment. In these cases the glands formed a moveable, palpable tumour, usually under the lower part of the left rectus muscle. As, next to bronchial tuberculous glands, tuberculous mesenteric glands were the most

frequent focus of general tuberculous infection, operation should be undertaken. Caseous glands should be incised, evacuated, gently curetted, and closed with a stitch which threw the walls into folds. These cases did very well so long as operation was not put off too long. Some of the earlier cases were shown at the Medical Society of London[1] a year and more after operation. Cases were not referred to in which the whole of the lymphatic glands of the abdomen were enlarged but only those where the enlargement formed a definite local tumour.

Dr. R. O. MOON (London) read a paper on

The Prognosis of Infantile Convulsions.

He dealt with the subject under seven heads:—

1. *Probability of infantile convulsions becoming epileptic.*—His observation of 280 cases seemed to show that the convulsions which arose in association with some apparent cause such as teething, rickets, traumatism, specific fevers, digestive disturbances or general ill-health were as likely to recur as those which arose *de novo* when the child was in apparent health. In 60 per cent. of these cases the fits recurred after the ordinary period for infantile convulsions was past; but of these nearly as large a proportion was drawn from the cases in which there had been an apparently removeable cause as from those in which the fits had commenced spontaneously.

2. *Effect upon the mental powers.*—This was shown in general backwardness and dulness at school, in particular inability to do arithmetic and deficient memory. In 25 per cent. of the cases the intelligence was impaired and of these more than half were drawn from the cases of reflex origin. Thus the cases associated with teething and rickets showed some mental weakness in 29 per cent. and 25 per cent. respectively.

3. *Effect upon the general character.*—This was more frequently affected injuriously than the intelligence: barely one-half could be regarded as entirely normal. The most unusual defects were exceptional fretfulness and irritability, unreasonable outbursts of passion, abnormal restlessness, spitefulness, and destructiveness. Here the outlook was hardly any better for the children with reflex than for those with spontaneous convulsions. Thus the cases associated with teething showed moral impairment in 42 per cent. and those associated with rickets showed it in 35 per cent.

4. *Nocturnal enuresis.*—Of this there were 14 per cent., divided equally between the fits of spontaneous and those of reflex origin.

5. *Night-terrors.*—There were 22 per cent., and of these 8 per cent. were connected with the fits of spontaneous origin, and 14 per cent. with the reflex convulsions.

6. *Heredity.*—In 40 per cent. of the cases there was a history of epilepsy, insanity, hysteria, or infantile eclampsia in the ascendents or collaterals; of those who owned this neuropathic inheritance more than two-thirds were impaired in mind or character.

7. *Alcohol.*—There was a history of alcoholic excess in one or both parents in 18 per cent. of the cases, but whatever part this might play in the causation of the convulsions it did not appear to affect the prognosis unfavourably with regard to impairment of mental or moral powers.

An infantile convulsion, whether arising with a sudden unexpectedness or connected with an apparently morbid condition, was not an isolated phenomenon leaving no trace of itself behind. It was rather an outward and visible expression of some disturbance taking place in the higher levels of the brain, which at times might be sufficiently great to show itself as a convulsion, while at other times it might manifest itself in minor fashions, such as enuresis, night-terrors, violent outbursts of passion, momentary hallucinations, twitching of the hands, stammering, &c., the significance of which was not perceived. A child who had had a convulsion did in most cases bear some traces, if searched for, of what the French call "aptitude convulsive," either in some unusual habit of mind or character or in some psychic peculiarity. He was to some extent a damaged individual and a knowledge of this might be of some help in showing what not to attempt in the way of education.

Mr. W. H. BOWEN (London) read a paper on

Two Cases of Pneumococcal Peritonitis in Children.

Reference was made to the paper published in THE LANCET of June 9th, 1906, p. 1591, where, in conjunction with Dr. W. F. Annand, Mr. Bowen published a long paper on this subject. The first case, which occurred in a Polish Jewess, aged five years, was of the acute diffuse variety and without preceding illness. Clinically it was a typical case of acute peritonitis and was operated on at once. Odourless pus was found. The appendix was found and removed but there was no reason to suppose that it was the origin of the trouble. The child did well for about 30 hours after operation. She then developed signs of severe thoracic trouble and died 55 hours after operation and within five days of the acute onset. The pus from the peritoneal cavity grew a pure growth of the pneumococcus. At the post-mortem examination the extent of the involvement of peritoneum was greater than might have been expected from the conditions found at operation. Pus and fibrinous deposit were found on the under surface of the diaphragm and round the spleen and over the greater part of the posterior wall of the abdomen. There were bilateral empyemata and early pleuro-pericardial adhesions. In the second case, also a girl, aged eight years, there had been a preceding pneumonia followed by pain in the abdomen and para-umbilical swelling and tenderness. The whole history was a month previously to admission. There was a localised abdominal abscess tracking into the pelvis. This was opened and for a time did well, but later there formed a fæcal fistula and the child ultimately died, 10 months from the date of admission, from a chronic mediastinitis. Mr. Bowen pointed out that these two cases were typical of the two great varieties of pneumococcal peritonitis—the one the diffuse, the other the local. Both died with thoracic complications, but whereas in the one case the empyemata were merely a sign of a virulent septicæmia and did not *per se* cause death, such could not be said of the mediastinitis in the second case which appeared directly to cause death from embarrassment to breathing and the movement of the heart. Both cases occurred in girls, coinciding with the prevalence of the lesion in the female sex.

FRIDAY, JULY 31ST.

Dr. LEONARD G. GUTHRIE (London) opened a discussion on

Fatty-Acid Intoxication.

He said that acidosis and fatty-acid intoxication might occur in all cases in which the liver was excessively fatty. The existence of a superfatted liver in itself was probably not dangerous, but it implied defective metabolism and oxidation as a rule. Should metabolism and oxidation be further perverted by the action of a general anæsthetic, fatal toxæmia, not attributable to fatty-acid intoxication alone but to a general breakdown of all the hepatic functions, might occur. These results were not due to the specific action of chloroform alone, but might be the consequence of administering any general anæsthetic in the presence of a fatty and disordered liver. At the same time, chloroform in these conditions was the most dangerous anæsthetic of all. Treatment by alkalies or carbohydrates afforded but slender hope of cure in post-anæsthetic intoxication. Anæsthetics might be dangerous in cases of acute and chronic sepsis, whether due to specific organisms or intestinal saprophytes. It was extremely doubtful if fatty-acid intoxication was ever the sole cause of death. Whenever there was reason to suspect the existence of fatty liver and possible hepatic inadequacy to deal with fat and carbohydrates, ether and oxygen were the least dangerous forms of anæsthetics to use. The toxins were β-oxybutyric acid, acetone, and diacetic acid discoverable in the urine. The symptoms were uncontrollable vomiting and diarrhœa, thirst, suppression of urine, and rise of temperature to 101° or 102° F. Delirium, apathy, coma, and death ensued. Sometimes erythema or purpura occurred, the skin was dry, the abdomen retracted, and there were attacks of collapse with temporary rally. The condition was common to diabetic coma, acute yellow atrophy of the liver, phosphorus poisoning, the effects of certain drugs, anæsthetics, and recurrent or cyclical vomiting in children. The last affected girls more than boys, usually between the ages of two and ten years. At intervals of a few weeks acute attacks of vomiting occurred associated with the presence of acetone and diacetic acid in the urine. In the intervals the health was apparently good and the seizures ceased at puberty, being replaced perhaps by migraine. The condition was serious and seven fatal cases were recorded, necropsy

[1] Transactions of the Medical Society of London, vol. xxix., 1906, pp. 399-402.

showing both kidneys and liver to be very fatty and necrotic changes to be present in the mucous membranes.

Dr. W. J. DIXON (Templecombe) in 153 cases had found acetone in 28 per cent. and diacetic acid in 14 per cent. The condition was associated with septic absorption and the administration of salicylate of sodium. Of 43 instances of acetonuria, serious toxæmia occurred in 27. The causes of acidosis appeared to be auto-intoxication in gastro-intestinal disorders, a specific organism, excess of carbohydrate or fatty food, starvation, anæsthetics, and those without discoverable origin, which might be termed cryptogenic. Fatty degeneration and lipæmia occurred in diabetes, carbohydrates being necessary to the complete disposal of fats. The poisons were the products of imperfect oxidation.

Dr. E. I. SPRIGGS (London) cited the observation of Nothnagel that the appearance of fat in organs after anæsthetics was due to its being more obvious, and was not necessarily an actual increase proved by chemical analysis. Waithman had shown that excess of fat was present in the liver of dogs after chloroform poisoning. A fatty condition of the liver was normal in starvation, which was a cause of acidosis in children and was a necessary consequence of gastro-intestinal disease. The loss of fluid involved in diarrhœa and vomiting was itself a serious thing. The treatment in children should consist in washing out the stomach and supplying fluid, alkali, and food if necessary by the rectum or skin.

Mr. HAROLD J. STILES (Edinburgh) said that post-anæsthetic acidosis or delayed chloroform poisoning occurred in something like 1 in 500 cases. It was a serious condition and not sufficiently recognised. He cited instances of two adults succumbing in four or five days after simple operations for appendicitis performed under chloroform in which the post-mortem appearances were typical. In septic abdominal conditions ether was usually preferred in America. The acidosis was not entirely traceable to the quantity of chloroform employed and sometimes the condition followed the most trivial operations. Anæsthesia might delay elimination, hinder oxidation in the tissues, and accentuate the pre-existing state which was associated with sepsis.

Dr. STUART MCDONALD (Edinburgh), speaking of the post-mortem appearances, said that in cases examined recently the liver was small, bloodless, bright yellow in colour, and intensely fatty. There were hæmorrhages over the heart and lungs, such as occurred in phosphorus poisoning. Leucin and tyrosin had been present in the urine, in which the urea nitrogen was diminished and the ammonia nitrogen increased. In such cases where deep jaundice developed the outlook was hopeless. The liver in late chloroform poisoning showed an increase of fat, whereas in acute yellow atrophy the fat was diminished.

Mr. B. G. A. MOYNIHAN (Leeds) said that though there was too much starvation of patients both before and after operation, water at least should not be withheld, but should be given abundantly during vomiting by the rectum, when the stomach should also be washed out. Ether was preferable to chloroform when operating on septic abdominal cases. Gas and oxygen had been given in one case for an hour and 40 minutes.

Dr. J. B. LEATHES (London) said that in cases in which vomiting, acetonuria, and death followed the administration of chloroform the fat in an exceedingly fatty liver resembled that in connective tissue. Fat ingested passed mostly by the thoracic duct. In cases of poisoning the fatty change was very rapid, occurring within 24 hours.

Dr. F. A. BAINBRIDGE (London) said that the first process of metabolism involved the conversion of the saturated connective tissue fats into the saturated fat of the liver and a second process concerned the burning up of fat in the body. Interference with this latter produced acetonuria. Impaired oxidation of fat in muscles caused accumulation of fat in the liver, which could therefore be excluded as the cause of symptoms. Chloroform exerted an action similar to phosphorus in arresting oxidation.

Dr. F. S. LANGMEAD (London) said that deferred anæsthetic poisoning affected persons apparently well previously, causing well-defined symptoms with acetonuria and death in two or three days, the appearance of the liver after death being characteristic. The condition depended on impaired oxidising power aggravated by the anæsthetic.

Dr. W. P. KENNEDY (Bath) attributed the intoxication to imperfect oxidation of carbon.

Mr. SYDNEY STEPHENSON (London) made some remarks upon

Interstitial Keratitis with Especial Reference to Pathogenesis and Treatment,

pointing out that interstitial keratitis was, relatively speaking, not a common affection of the eyes; that its greatest incidence occurred between the ages of five and 15 years; that females were more often affected than males; and that syphilis (inherited or acquired) accounted for about two-thirds of all cases. Experimental evidence went to show that the disease was due to the presence in the parenchyma of the cornea of the causal agent of syphilis. The curious latency of the disease was to be explained by the diffusion of the organism known to occur in syphilitic babies. Spirochæta pallida had been found in the seemingly healthy tissues of the eyes of syphilitic infants and fœtuses by Bab, Peters, Gierke, Stock, and himself. Interstitial keratitis in Mr. Stephenson's experience was little influenced by the administration of specifics, but he had found atoxyl, given in conjunction with mercury, to be a most efficacious remedy. Cases were quoted in which comparatively rapid cures had been obtained by those means. Mr. Stephenson advocated the intra-muscular injection of doses of 0·25 to 0·50 gramme (i.e., 3¾ to 7¾ grains) of atoxyl once a week in mild cases and more frequently in severe ones. Not more than six grammes should be given in all, and a course of 12 injections usually sufficed to cure or almost to cure the cases.

Dr. FRANK C. EVE (Hull) and Dr. J. M. CLEMENTS (Hull) described

The Two Clinical Types of the Meningococcus and their Bacteriological Differentiation,

illustrated by three sporadic cases. Until recently it was considered that the presence of a Gram-negative diplococcus in the cerebro-spinal fluid was sufficient evidence of epidemic cerebro-spinal fever, but it now appeared that there were two such organisms (at least) which could be distinguished bacteriologically. Since the one type of diplococcus produced the dreaded "spotted fever" and the other type the posterior basic form of meningitis, which was endemic in this country but apparently never epidemic, it was obvious that their prompt and certain bacteriological differentiation was of considerable clinical importance. The paper was based on the detailed study of three sporadic cases and a tabular statement of their points of agreement and difference with the epidemic type of coccus was printed and handed round to the meeting. The two types of coccus and the diseases resulting therefrom were found to be indistinguishable, except in the following respects: (1) cultural, (2) agglutinative, (3) phagocytic, and (4) clinical.

1. *Cultural differences.*—The sporadic organism generally grew (*a*) on agar, often very freely; (*b*) on gelatine; (*c*) at room temperature; (*d*) had considerable vitality; and (*e*) often formed on agar abundant moist, iridescent, coalescent colonies which might be sticky enough to draw out into filaments three inches in length.

2. *Agglutinative differences.*—The sporadic organism did not agglutinate with the patient's own serum nor with the serum of an epidemic case (Houston)† nor with the antiserum of Flexner and Jobling, but it would sometimes agglutinate with the serum from another sporadic case.

3. *Phagocytic differences.*—The sporadic organism showed little or no tendency towards engulfment by the polymorphs in normal blood or that of the patient of an epidemic case. This with the absence of agglutination combined to make the opsonic index extremely low in comparison with that of the epidemic coccus. In the cerebro-spinal fluid also *intra*-cellular cocci were never abundant.

4. *Clinical differences.*—The sporadic type never showed skin eruptions (which, however, were frequently absent in the epidemic form), and in the case in which they tried the new antiserum of Flexner and Jobling[1] the effect was unfavourable.

The purpose of the paper was to show that by the help of lumbar puncture and the laboratory the insufficient clinical differences might be supplemented and a decided and prompt opinion given as to which of these two organisms was at work—in times of scare a most important verdict. Since the cultural differences were liable to be

[1] This serum, which is not yet on the market, Dr. Eve and Dr. Clements owe to the kindness of Dr. A. G. Robb of Belfast. In his cases it reduced the mortality from 82 per cent. to 26 per cent.

decided tardily and to be inconstant, involving as they did the modifications incident on many generations of sub-culture, they were disposed to rely chiefly on the quicker verdict of agglutination and phagocytosis. Since they only required to know whether phagocytosis was conspicuous by its presence or absence, they need not follow the elaborate opsonic technique of Wright but simply make an emulsion of the youngest possible culture in 1 per cent. sodium citrate solution in normal saline and mix it with an equal volume of fresh blood from the patient (which was thereby prevented from clotting). Incubated for half an hour, and a glance at the stained film would show whether there was any agglutination and whether there was the immense phagocytosis characteristic of the epidemic form or the more or less complete absence of phagocytosis which they found in their sporadic cases.[2] It had been found that, after the oral administration of urotropine, formaldehyde might be detected in the cerebro-spinal fluid. This was tried in two of Dr. Eve's and Dr. Clements's cases without decided effect, and they could not detect it in the spinal fluid by the resorcin test. If the sporadic meningococcus turned out to be as constant in type as the epidemic coccus had been shown to be it should be easy when confronted with a Gram-negative meningitis case to answer confidently these practical questions: (1) Was the case likely to be followed by an epidemic? (2) Should the case be isolated? (3) Was the antiserum of Flexner and Jobling likely to do much good or great harm? (4) Should the case be notified as cerebro-spinal fever?—i.e., should the occupants of a house, a street, or a city be needlessly terrified for a non-epidemic case as often happened in the scare times last year?

Mr. H. TYRRELL GRAY (London) read a paper on

Herniæ in which Meckel's Diverticulum was Present.

A case was reported of a male child, aged six months, where this structure was present in a right inguinal hernia. About 60 cases were collected from the literature, of which 42 were tabulated. This list showed the usual preponderance of males in lesions of Mickel's diverticulum, and this structure was present 30 times in inguinal and 12 times in femoral herniæ. The commonest age was shown to be more advanced in this than in other lesions of the diverticulum and all cases were strangulated or irreducible. Cases were grouped into two types: 1. Those where the diverticulum or part of it was alone present in the sac. This type occurred in persons of middle or advanced age, tended to be overlooked on account of the insignificance of the accompanying symptoms and signs, and formed external fæcal fistulæ in 41 per cent. of cases. 2. Those where other viscera were also present in the sac. Cases in children belonged exclusively to this type, which presented the usual symptom-complex and clinical course of strangulated hernia. The danger and unjustifiability of attempting reduction by taxis in strangulated herniæ were illustrated, this practice having resulted in death in each case of the present series. The danger of a truss, where avoidable, was also touched on. The extreme liability to perforation of the diverticulum was noted in lesions of this structure, and the possibility of diagnosis of its presence in a certain number of cases was briefly indicated.

DENTAL SURGERY.

THURSDAY, JULY 30TH.

THE attention of the section was directed to a discussion on the question of

Teething and its Alleged Troubles.

Dr. LEONARD G. GUTHRIE (London), in opening the discussion, reviewed the subject historically. Hippocrates observed that "teething children suffer from itching of the gums, fevers, convulsions, diarrhœa, especially when they cut their eye teeth, and when they are very fat and costive." Aristotle attributed convulsions not to dentition but to overfeeding fat and constipated infants. Gradually the doctrine developed that most infantile complaints were not merely associated with teething but were caused by reflex disturbances arising by the efforts of the teeth to erupt through hard and resistant gums. During the dark ages of the seventh to the fifteenth century the whole science of medicine was hampered by superstition, astrology, witchcraft, and magic spells and incantations; the Renaissance bringing with it the revival of Greek study, the authority of Aristotle, Hippocrates, and Galen again became ascendant. Ambrose Paré, writing in the sixteenth century, said: "Children are greatly troubled with their teeth, which cause great pain when they begin to break out of their shell and begin to come forth, the gums being broken (which usually happens about the seventh month of the child's age). This pain comes with itching and scratching of the gums, inflammation, diarrhœa, and often gives rise to fever, falling of the hair, convulsions, and at length death," all these being, as Paré says in another passage, due to the contumacious hardness of the gums or the weakness of the child's nature. An old French proverb, quoted by Jean Seultel in 1671, relates to the eruption of the eye teeth: "Les parens ne peuvent pas bien réjouir jusqu' à ce que les dents sous les yeux applées canines soient sorties." Many curious prescriptions were also cited, including the use of an ointment of blood from a fresh cock's comb. The many vicissitudes in the practice of gum lancing were also considered; T. Willis and W. Harris in the seventeenth century, Arbuthnot and Horlock in the eighteenth century, and West and Clendon in the early part of the nineteenth century were quoted. Dr. Guthrie then turned to the modern side of the question and pointed out that the deaths attributed to teething given in the Registrar-General's report show a steady decrease (178 per 1,000,000 in 1886, 63 per 1,000,000 in 1906). Dr. Guthrie thought that teething was only painful when the gums were unhealthy or inflamed and that they might become so as the result of "common colds," gastro-intestinal disorders from overfeeding or improper feeding, or from bruising and infection of the gums from local injury caused by biting on hard, unclean objects. Oral hygiene in infants was therefore of greatest importance. Turgid gums might be scarified, not to liberate the teeth but to relieve local congestion. The operation was seldom necessary. Convulsions were much more frequently due to colic than to the teeth. The physiology of the eruption of the teeth, he said, was still a mystery.

Mr. H. A. T. FAIRBANK (London) considered that to ascribe fits or convulsions to the eruption of teeth was most fallacious. As out-patient surgeon to a children's hospital he had many opportunities for verifying or the reverse the many curious statements relating to the association of teething with reflex phenomena. A unilateral fit was not necessarily caused by unilateral irritation, and gastro-intestinal toxæmia frequently produced unilateral convulsions. Even the persistence with which an infant displayed a desire to munch any hard substance was not related to the period of tooth eruption only and the pain caused by bruising of the delicate gum covering the rising tooth was quite as often the source of pain as the eruption of the tooth itself. Stomatitis was not to be referred to the eruption of the tooth but to infection with micro-organisms. In three months' careful examination Mr. Fairbank only saw one case in which inflammation was localised to the portion of gum overlying an erupting tooth. The only reflex phenomenon which could be referred to teething was trismus of nervous origin, not that due to inflammatory inflammation of the muscles of mastication. The commonest tooth to give rise to this species of trismus was the wisdom; much less frequently the first or second molar was the cause. A case of trismus in a child the subject of congenital syphilis, aged 11½ years, was described, the source of the spasm being an unerupted second lower molar; the removal of a large flap of inflamed gum over the erupting tooth relieved the symptoms. Local swellings over erupting teeth were usually due to traumatism and as a rule were septic, although sometimes hæmorrhagic; generally the discontinuance of the septic ring or other article with which the child was aiding eruption was the only treatment necessary. Mr. Fairbank had often seen spongy gums in infantile scurvy in edentulous mouths and the presence of the teeth was not necessary to the condition. The distension of the tooth follicle with fluid forming a cyst was rare but a well-marked instance had recently come under his notice.

Mr. J. G. TURNER (London), in continuing the discussion, referred to the physiological process of teething and force of eruption as being a normal vital process which varied with the condition of the individual, and although limited in man to the period of growth was persistent through life in many animals. The unerupted tooth was contained in a bony case; before eruption the bony covering was removed, the removal taking

[2] Vide Houston and Rankin, Brit. Med. Jour., Sept. 16th, 1907.

from two to six weeks. During the whole period of early life from six months to two years active processes of absorption and eruption were progressing. As at eruption only a part of the tooth was formed very slight opposition would deflect the tooth. Eruption did not depend on elongation of the root, no gum tension was produced, and no great display of force was present. Sections of the tissues over an erupting molar which had not yet cut the gum but was through the bone, showed a delicate layer of epithelium quite normal in appearance. If pressure existed this epithelium would be flattened and there would be signs of inflammation present. When a permanent tooth was prevented in its eruption by a retained temporary tooth, due to incomplete absorption of the temporary tooth, the molar was unable to displace the temporary tooth, but twisted sideways or backwards as shown by the curving of its roots. Specimens and slides were shown illustrating these points. There was no evidence of teething troubles occurring in animals. There were very few traditions among native races of the association of disease with the process of teething. Mr. Turner then went on to analyse the so-called teething troubles. He had made careful inquiry amongst well-to-do parents of the dental histories of their babies; in all 37 cases were inquired into. Of these 22 had no illness attributed to teething, and 15 had suffered from various diseases. Most of the infants were partially bottle-fed, but the bottles were in practically all instances carefully cleaned. Of the 15 children who were ill there were eight cases of bronchitis: five of these were associated with adenoids, one with rickets, leaving two in which bronchitis coincided with teething; four cases of sickness or liver attacks, one of summer diarrhœa, and one of screaming fits were stated to have occurred. Of the 37 cases 13 showed excessive salivation. Mr. Turner was unable to find any evidence in the series of cases inquired into that the disorders were in any way directly referable to teething.

Dr. EVELYN S. MILESTONE (Sheffield) said that dentition was a normal process and one following a normal course in children properly fed and clothed and cared for, but that the physiological state of the child during dentition was one of unstable equilibrium and liable to be altered by very slight causes. Earache, often wrongly attributed to dentition, was not uncommonly, in infants, due to local causes. It was some 25 years since the speaker had lanced a child's gums; on that occasion the convulsions ceased immediately after the incision, but a few hours after were as serious as ever.

Dr. C. CHRISTOPHER HEYWOOD (Manchester) said that he agreed with practically all that Dr. Guthrie had said. As physician to the Manchester Children's Hospital during the last few years he could find no instance in which he had diagnosed teething as a cause of disease symptoms. Cases of painful dentition, of course, he had treated in great numbers, but no case in which the painful dentition was not preceded by other complaints, especially catarrhal or septic conditions of the mouth. He had never seen convulsions, diarrhœa, bronchitis, &c., attributable to dentition.

Mr. P. SIDNEY SPOKES (London) agreed as to dentition being a normal process, but had noticed purposeless cough, such as so-called ear cough, as each tooth came through, whilst convulsions were admittedly caused by septic poisoning. He also thought that such a manifestation might be a reflex result of peripheral irritation, and if this was admitted it was only a question of the degree of irritation necessary. He had seen cases where there appeared to be marked swelling over developing and erupting teeth and no septic infection. In such cases lancing the swollen gums had been followed by relief.

Mr. C. EDWARD WALLIS (London) said that at Darenth Asylum years of careful record had been kept of the incidence of fits before and after the children's mouths had been made free of all dental irritation. The records gave no evidence of a diminution in the number or severity of fits as the result of dental treatment. Pain following or accompanying eruption of a wisdom tooth was, of course, due to septic processes.

Dr. J. SIM WALLACE (London) considered in common with previous speakers that dental troubles associated with teething were generally of a septic nature and predisposed to, if not actually caused, by improper feeding.

Mr. R. DENISON PEDLEY (London) had had little experience in the early period of infancy when consultation was sought for teething troubles. Later in life when the teeth, or only a few teeth, were erupted it was common to find well-marked carious teeth even in infants as young as from 12 to 18 months. As the majority of children were born healthy it was obviously due to some cause of environment, feeding being the predominant factor which was answerable for the condition of the mouth. There was very little trouble with teething in natural feeding.

DERMATOLOGY.

FRIDAY, JULY 31ST.

After the PRESIDENT of the section (Dr. E. G. GRAHAM LITTLE, London) had made a few opening remarks,

Sir ALMROTH E. WRIGHT (London) gave an extemporary address on

Vaccine Therapy in Relation to Diseases of the Skin.

At the commencement of his speech Sir Almroth Wright remarked that he had nothing new to impart to the Dermatological Section, but he would rehearse the principles of vaccine therapy which he had already made public and answer several criticisms to which his method had been subjected. Vaccine therapy really dated from the inoculation of small-pox in the eighteenth century. Jenner's discovery had carried matters a step further, and Pasteur had by his researches shed light on the *rationale* of those practical experiments. The work done by Haffkine in India on plague and by himself on typhoid fever had greatly widened the sphere of prophylactic inoculation. When it had thus been made evident that immunity could be obtained by prophylactic inoculation methods it had gradually been borne in upon him that this knowledge of protecting by prophylactic immunity could be carried a step further, that when the disease was actually present in the system there still remained a power of resistance which might be called forth by inoculation. Just about that time Koch's tuberculin had been introduced. The object of this method was to destroy the tissues in the immediate neighbourhood of the germs, causing a local necrosis which would be expelled from the body and with it the focus of bacilli would be thrown out, leaving the healthy tissues around unharmed. This method was therefore not allied in any way to that of prophylactic inoculation. Koch had then been called to other work and for the time being had not carried out the next step in tuberculin treatment. When the body was lowered by disease it still retained a certain reserve power of resistance and this was taken advantage of by the vaccine treatment. Small doses of devitalised micro-organisms could call out this resistant power. Cultures were made from the source of infection and from these cultures vaccines were prepared by heating the germs to a degree sufficient only to devitalise not to destroy them. Objectors had inquired how the germs could be devitalised without being destroyed, and how could they act in such a manner as to call forth the resistance of the body? He would answer by giving a simple illustration. The body had the power of throwing off into the blood antibodies or substances which resisted anything which was introduced into the blood. Thus if the white of an egg was introduced into the blood the blood at once began to throw off substances which acted as antibodies to neutralise the white of egg. If, now, the egg were heated to a certain temperature it would be devitalised, no chicken could be produced from it; but if it were introduced into the blood it would still lead to the production of antibodies in the blood. In the same way devitalised microbes introduced into the blood led to the production of antibodies, substances resisting that special form of microbe. To obtain correct results with vaccine therapy it was necessary to administer definite doses, doses which were capable of raising the protective substances in the body to their greatest possible height. The question next arose, how could this dose be measured? How could we ascertain what was the correct dose? The question implied, how could we measure the degree of protective power in the blood of the human body? The protective power of the blood depended on many points, such as (1) the opsonic power of the blood fluid; (2) the agglutinating power; (3) the phagocytic power of the leucocytes; (4) the bactericidal; and (5) the bacteriolytic power of the blood. And even these were not all. As science advanced more would be added to that list. If he were asked whether he would prefer to make a complete or an incomplete evaluation

of the protective power of the blood he would reply that he would prefer to make a complete estimation, but that at the present time it was impossible to do so. The opsonic evaluation of the protective power of the blood fluid was, he frankly confessed, an incomplete evaluation, but as at the present time it was the only possible one to obtain it should certainly be employed. A partial evaluation was of more practical use than none at all. Objections had been raised to the effect that a partial evaluation could not be useful as an index of immunity; its employment was not justifiable. To these objections he replied that if repeated examinations extended over years and made in thousands of cases had shown that a low opsonic power was associated with low resistance to disease, and that there was a definite correlation between high opsonic power and curative processes, the conclusion could certainly be drawn that the opsonic evaluation of the blood was of use for the estimation of protective substances in the blood. The further objections might be raised, and indeed had been raised, that the recorded cases were selected, the failures neglected or forgotten, and that the improvement noticed under vaccine treatment was not real improvement but an improvement apparent only to the sanguine and deluded physician. The only possible answer to such objections was to publish certain cases in which prolonged treatment had been carried out and in which charts had been made showing low opsonic power coinciding with a definite objective sign recognisable to all such as high fever, and high opsonic power coinciding with diminished temperature as well as improvement of the clinical symptoms. Sir Almroth Wright said that he intended very shortly to publish a series of ten charts illustrating these facts. He then passed on to consider the question whether it was necessary in all cases of disease to make an opsonic estimation of the blood before proceeding to treat by vaccines. The difficulty of the process was a barrier to its frequent employment and vaccine therapy would be neglected if its use necessitated an opsonic estimation. Experiments had been made on a large number of people and it had been found that in average cases certain definite doses produced the same results; further experiment had determined the size of the dose required to produce the best possible result in average cases. Thus for ordinary staphylococcal infections a dose could be given without first having recourse to an opsonic estimation. Only in certain rare cases which resisted the average dose was it necessary to undertake the opsonic investigation of the individual and prescribe the necessary dose in accordance with the findings of the opsonic index. Sir Almroth Wright turned to the consideration of a further objection that had been raised. It had been said that the opsonic index could be of no value because patients had died while the index was high. The explanation was, that although the general circulating blood fluid might be highly resistant yet the focus in which the germs dwelt might be inaccessible to the circulating blood. The blood in an abscess might have a very poor resistance and the leucocytes in the abscess might be dead, although the blood in the general circulation of the same patient had high resistive powers in its fluid and its leucocytes might be quite healthy. In chronic sinuses the firm wall prevented fresh blood gaining access to the situation where the germs were pent up. The principle to be learned from this fact was that in treatment *the protective substances in the blood must be brought into effective operation at the site of infection*. The importance of this principle could not be over-estimated in practice. He would conclude this general outline of the theory of vaccine therapy by urging those present to remember the two main principles: (*a*) the necessity of producing the highest possible protective power of the blood by correct vaccine dosage, and (*b*) the necessity of bringing that blood into efficient operation at the site of infection. Sir Almroth Wright next considered the treatment of certain diseases specially affecting the skin. Boils could in most cases be cured quite mechanically by administering the ascertained average doses of staphylococci. A carbuncle was less easy to cure, because the blood could not easily be brought into effective contact with the germs. The best method to favour the blood flow in the carbuncle was to administer citric acid internally, thus diminishing the blood coagulability, and locally to apply a solution of salt and sodium citrate in order to decalcify the lymph. He regretted to say that in his hands Bier's method of inducing local hyperæmia by dry cupping had given no good results. In lupus the crusts should be removed and the lymph flow encouraged by a local dressing with a very dilute solution of salt and citrate of sodium. When the flow of lymph was deemed sufficient it could be checked by rubbing into the part a mixture of chalk and calcium chloride, in the proportion of 1 part of calcium chloride to 399 parts of precipitated chalk. The lymph flow should be induced daily by the above method and at the same time tuberculin injections should be administered. In chronic processes such as tuberculosis the resisting power of the blood should be noted repeatedly and the correct dosage accurately determined. In severe cases of lupus streptococci and staphylococci were usually present and it was essential that treatment should also be directed against those micro-organisms. He had had very unsatisfactory results with the superficial dry lupus, usually known as psoriasis lupus, and for this failure he could at present suggest no adequate explanation. In erysipelas the routine dose was 2,000,000 streptococci administered every four days; the results were remarkably good.

After Professor T. C. GILCHRIST (Baltimore) had moved a vote of thanks to Sir Almroth Wright for his lucid and instructive address,

Professor ARTHUR WHITFIELD (London) asked several questions. Was it a fact that a high opsonic index invariably indicated that a correct dosage had been given? He had seen quite a number of cases of boils in which a dose of vaccine had been given, and although 24 hours later a high opsonic index was present a fresh boil had developed in the intervening period of time. Did not this observation prove that the partial evaluation of the blood indicated by the opsonic index was not always an accurate method of ascertaining the size of the dose of vaccine necessary to induce a protective process? On the other hand, vaccine therapy had fallen into undeserved disrepute from failures in cases where medical men had made mistaken diagnoses and treated rodent ulcers with tuberculin, or streptococcal infections with staphylococcal vaccines. It seemed a simple matter to take a specimen of pus from an ordinary boil and have it examined to discover what micro-organism was in operation, but in less simple cases a lack of knowledge of ordinary bacteriological technique on the part of the medical man in attendance had been the cause of failure to detect the disease-producing organism. If the medical man could not carry out these procedures correctly he had better leave vaccine therapy to more competent hands, or that method of treatment would be still further discredited. With reference to Sir Almroth Wright's solution of salt and citrate of sodium, he had found the solution of value in many cases without any vaccine injections. For example, a chronic callous ulcer of the leg could be softened in a week by such a solution applied from time to time to encourage the flow of lymph. On the other hand, cases such as chronic sycosis, which were so difficult and long-standing when treated by ordinary methods, often cleared up after one vaccine inoculation. Impetigo contagiosa could be cured in two days. The failure of lupus to respond to vaccine treatment was very strange; he had never seen a case benefited by it. After treatment by Finsen light the lupus granulomatous tissue became replaced by a fine soft atrophic scar; but after vaccine treatment he had never seen such a scar. The superficial so-called psoriasis lupus ought to be the easiest form to cure, because it occurred in the papillary layer of the skin which was very vascular and ought readily to be bathed in the highly protective substances of blood raised to a high opsonic index after suitable injections.

Dr. W. M. CROFTON (Sutton Bridge, Lincoln) had worked with vaccine therapy in Ireland for three and a half years. He had also used the anti-bacterial sera, employing small and gradually increasing doses every fourth day. He quoted a serious case of erysipelas which had been practically cured in less than a week. He always started with small doses. As another instance of immunisation on these lines he quoted a case of tuberculous disease of the hip-joint treated by 12 doses of tuberculin R., beginning with 1-10000th of a milligramme and ending with one milligramme. The treatment extended over six months. Not much improvement was noticeable until after the sixth dose. The patient was now quite well and had been so for six months.

Professor GILCHRIST said that at the Johns Hopkins University they were using the vaccine treatment empirically

in the clinical wards. The pathologists had given it up as unreliable and unworkable. He had tried the staphylococcus albus in severe forms of bullous erythema in which all cultures had proved sterile, and he had obtained excellent results. He believed that it was safe to try so harmless an organism empirically in cases of skin disease the cause of which was unknown. A case of staphylococcus aureus infection had greatly improved with dosage with the staphylococcus albus. They had also tried very small and gradually increasing doses of tuberculin for tuberculosis of the skin and had obtained very good results. For acne vulgaris he had tried a vaccine made from the bacillus of acne and had found it successful in the nodular forms of the disease. He hoped to publish results of this very shortly.

Dr. A. DOUGLAS HEATH (Birmingham) narrated a case of erythematous skin disease due to the bacillus coli which had been cured by vaccine treatment. Nodular resistant cases of acne were sometimes aided by the salt and citrate of sodium local applications, but usually it was necessary to scrape the follicle in order to effect a cure.

Mr. G. PERNET (London) said he had employed various vaccines empirically for boils with very good results so long as he had employed only very small doses. He had worked out a number of hospital cases with Dr. Bunch and called upon Dr. Bunch to describe these in greater detail.

Dr. J. L. BUNCH (London) said that he and Mr. Pernet had made experiments on cases suffering from tubercle, streptococcus, staphylococcus, and other germs, and narrated a few cases. He had not obtained good results with general streptococcal infections.

The PRESIDENT of the section observed that he had had greater success with the vaccine treatment of lupus vulgaris than had been obtained by the majority of the speakers.

Sir ALMROTH WRIGHT, in replying, admitted that the partial evaluation of the blood by the opsonic estimation was not a perfect method of estimating the protective power of the blood, and that in occasional cases the high opsonic index did not coincide with a total high protective power of the blood. He would prefer a method of complete evaluation, but at present it was impossible to obtain such. He could not yet supply any theory which would explain the recalcitrant reaction of lupus to vaccine treatment. In mixed infections it was often necessary to treat with one vaccine at a time and take each in turn. He deprecated the empirical use of vaccines in a great hospital where work should be carried out in a scientific manner; but in private cases it was absurd to withhold treatment until accurate bacteriological investigation and diagnosis had been made. A dose of 100,000,000 staphylococci would in nine cases out of ten cure boils, and this dose could be given by any practitioner with a clear conscience. He agreed with Professor Gilchrist that many cases of acne were due to the bacillus of acne, and a vaccine prepared from it had given excellent results in obstinate cases. He did not approve of the oral administration of vaccines.

Dr. ALFRED EDDOWES (London) read a paper on

Cases of Eczematous and Bullous Eruptions from which the Diphtheria Bacillus had been Isolated.

He described how his attention had been aroused in January, 1907, by a case which had been diagnosed as ecthyma, but which exhibited a degree of constitutional disturbance out of all proportion to the limited distribution and mild character of the eruption. After a careful examination of several large vesicles Dr. G. Hare, bacteriologist to St. John's Hospital, had obtained the diphtheria bacillus (Klebs-Löffler bacillus) in pure culture. Dr. Eddowes briefly described other cases which had led him to conclude that the Klebs-Löffler bacillus played a more important part in the production of skin diseases than had hitherto been suspected. In one case there had existed an almost generalised weeping, red, and crusted eczema, chronic conjunctivitis, and photophobia. After three years' ordinary treatment this patient had only obtained partial and temporary relief; but as soon as the bacteriological examination had revealed the presence of the Klebs-Löffler bacillus antitoxin treatment had been commenced and had been immediately followed by a most striking and rapid recovery after five injections, each of 4000 units. In all the cases examined by himself and Dr. Hare there had been such a degree of resemblance that they felt that the diagnosis with considerable certainty could be made from the clinical appearances alone. If further experience should prove this to be true a great step would be made towards curing a hitherto unsuspected and most incapacitating malady. Dr. Eddowes hazarded the opinion that this chronic disease was probably a source of danger to other people. In conclusion, he said that the diphtheria bacillus obtained in pure culture from the cases described had been inoculated into guinea-pigs and had caused death after 24 hours, whereas those guinea-pigs to whom antitoxin had been administered together with the organism had remained immune. In two cases a streptococcus had been found associated with the diphtheria bacillus, but it had been of a non-pathogenic nature to animals.

Dr. FREDERICK GARDINER (Edinburgh) read a paper on

Trade Dermatitis.

He discussed a series of statistics obtained at the skin department of the Edinburgh Royal Infirmary, 185 cases having come under observation in 18 months. The age of the patient seemed, as in the case of accidents, to diminish the risk of dermatitis. The statistics as to periods of time at work, although insufficient for finality to be obtained, seemed to indicate that most cases occurred when the individual had been at work for some years. Miners, housewives, chocolate workers, and rubber workers were at the head of the offending occupations. Seborrhœa and dysidrosis exerted a strong influence, diminishing the resistance of the skin to the irritating material. Most cases came up for treatment in the summer months. The last factor would increase the tendency to excessive perspiration. Debility also increased hyperidrosis. Further illustration of this point was brought out by the number of cases giving histories of anæmia, debility, and influenza. Many cases dated the outbreak from some slight breakdown. Soaps exerted a potent influence both as provocative and causative agents. The alkali in some was bad, the resin in others was worse, but worst of all were the naphtha and paraffin added to some of the newer soaps with a view to the saving of labour. Many patients also aggravated the condition by using irritating remedies, such as carbolic acid, lysol and iodoform. In these days of the Workmen's Compensation Act it was important to remember that persons most liable to be affected were those with seborrhœa or dysidrosis, especially if either condition was accompanied by debility or some more specific disease.

Professor GILCHRIST described the dermatitis associated with the poison ivy and the oak, two conditions not infrequently met with in America.

Professor A. GARCEAU (San Francisco) remarked that he had recently discovered that the application of the Roentgen rays was a most valuable and rapid method of treatment for cases of oak dermatitis. Formerly he had found such cases extremely obstinate and rebellious to all methods of treatment and had been delighted to find how rapidly the symptoms subsided under small doses of the Roentgen rays.

Dr. J. GOODWIN TOMKINSON (Glasgow) read a paper on

Lupus Vulgaris treated by Systematic Direct Exposure to Unmitigated Sun Rays,

in which he advocated the treatment of lupus vulgaris by daily and lengthy exposure to sun rays in localities where unclouded sunshine and other favourable climatic conditions could be depended upon. He had only treated one case as yet by this method, but the result had been so striking that it merited recording. At the Paris Congress on Tuberculosis held in 1905 two communications had been made dealing with the treatment of lupus vulgaris by unmodified sun rays—one by M. Revillet of Cannes, entitled "Le Traitement du Lupus Tuberculeux et des Scrofulo-Tuberculoses Cutanées par l'Héliothérapie (Exposition Directe aux Rayons Solaires non-Modifiés)"; the other by M. Vidal, entitled "Du Traitement du Lupus Ulcéré et de quelques autres Manifestations Tuberculeuses par l'Héliothérapie." He briefly referred to the former communication, which was based upon the results of treatment in 11 cases of lupus vulgaris and 34 cases of scrofuloderma. Of the 11 cases of lupus eight had been cured—i.e., almost 73 per cent. Of the 34 cases of scrofuloderma 28 had been cured—i.e., 82 per cent. The patients had been exposed so that the solar rays fell as directly as possible upon the lesions for a period of two or three hours daily, increasing to seven or eight hours daily according to the degree of reaction of the tissues exposed. To avoid cerebral congestion a broad-brimmed

white hat had been worn and the eyes had been protected by blue spectacles. In November, 1907, he had seen a woman suffering from extensive lupus vulgaris of the face and neck of 25 years' duration. The patient had been in the habit of wintering in a warm climate and it was decided to spend the winter at Helouan in Egypt. During her residence abroad she was advised to carry out systematic prolonged daily exposure to sun rays. The affection had made its appearance in very early childhood. Both cheeks were affected, the right extensively, and also the submaxillary regions on both sides. A large part of the lesion, however, was cicatrised but the right and left cheeks showed centrally situated typical apple-jelly nodules. Various modes of treatment had been tried, including tuberculin and the Finsen light, but with very unsatisfactory results. The patient had commenced heliotherapy at Helouan about Jan. 1st, 1908, and had discontinued it about May 3rd, 1908, when she had returned to this country. The face had been systematically exposed during these four months to the full blaze of the sun for five hours nearly every day. It had blistered from time to time. The first exposure produced six bullæ on the right cheek. This condition had been anticipated before leaving home and the patient had been instructed to use a lotion containing boric acid, calamine, and zinc oxide. As a protection against the sun the head had been swathed in a cloth and the eyes covered with a dark bandage. During these exposures the patient felt physically and mentally slack. In three weeks' time improvement had been recorded. The patient had been seen the day after her return to Scotland and careful examination had failed to discover any apple-jelly nodules, but there remained one or two faintly hyperæmic macules. The quality of the cicatrices was excellent. The general health had greatly improved and the mental attitude was eminently bright and cheerful. This result was very striking, especially when it was remembered that it had taken place in the relatively brief period of four months and had been instituted merely upon the principle of making the best use of available therapeutic measures while wintering abroad.

ELECTRICAL MEDICINE.

THURSDAY, JULY 30TH.

The proceedings were opened by Dr. H. LEWIS JONES (London) who read a paper to introduce a discussion on

Interrupted Currents in Medical Practice.

In his opinion there was a tendency in modern electrotherapeutics to get away from ordinary galvanisation and faradisation, especially in the treatment of muscular weakness, paralysis, and wasting, and to use in place of these currents which vary their magnitude and even direction in a regular rhythmic manner. The rhythmic interrupter worked by a metronome was a very efficient one and deservedly popular. He described a new apparatus by Gaiffe in which static currents were caused to vary in a rhythmic manner. The contractions were certainly not unpleasant but the apparatus was not very suitable for everyday work. For the painless currents, so suitable for testing, he thought the Leduc commutator preferable to the coil as a rule. He considered carefully wound induction coils of small size and having small iron cores to be the best, but if a large coil were used a very short spark gap should be placed in series with the secondary. This allowed only a part of the bigger waves to get through, so that the resulting current was a series of steep but short unidirectional impulses which were found to have little or no stimulating action on the sensory nerves.

Mr. W. DEANE BUTCHER (London) concurred in the value of rhythmically varying currents. He mentioned the importance of avoiding unequal pressure of the electrodes, which might cause objectionable results, and admired the use of the "chain-mail" electrodes which adapted themselves very readily to the configuration of the parts. He also drew attention to the fact that main currents were as a rule more painful than the current from batteries and were quite unsuitable for the production of electro-narcosis or any experiments of a more or less delicate nature.

Dr. WILFRED HARRIS (London) spoke of the good results which he had obtained in spastic paralysis by the use of the sinusoidal current administered in a full bath. He also confessed to a partiality for the combined galvano-faradic current which had done good service in his hands. At St. Mary's Hospital his rule was to treat the patients in series with each other.

Brief comments regarding their own practice were made by Dr. DAWSON TURNER (Edinburgh), Mr. G. H. THOMPSON (Buxton), and Dr. A. H. PIRIE (London).

The PRESIDENT of the section (Dr. E. REGINALD MORTON, London), after thanking Dr. Lewis Jones and those who had contributed to the discussion, stated that he had been so impressed with the value of a slowly varying current that he had been using it to the exclusion of almost every other for the past three years. He had settled upon a slow sinusoidal current chiefly for the reason that its generation presented no great difficulty and the generator would require less attention than any other apparatus which he knew of. He treated his hospital patients in parallel from shunt resistances, as this gave one the means to vary the strength of the current to individual cases. The periodicity of the current varied at times from one to two cycles per second. With regard to painless currents for testing he confessed that the Leduc commutator so modified as to give reversals of current had not quite come up to expectations, but so far as he had gone he thought that the best results were obtained when the moveable brush was adjusted to give very short impulses at the rate of from 400 to 600 per second. He still hoped that a satisfactorily painless current would be obtained in this way, possessing as it did so many advantages over coil currents.

Dr. LEWIS JONES replied.

Dr. DAWSON TURNER read a paper entitled

The Hæmo-renal Index.

The H.R. index, he said, was the ratio of the electrical resistance of the blood to the electrical resistance of the urine.

$$\frac{\text{Electrical resistance of the blood}}{\text{Electrical resistance of the urine}} = \text{H.R. index.}$$

This would be equal in health to three, four, or five whole numbers—e.g., $\frac{900}{225} = 4$ or $\frac{1000}{250} = 4$. The higher the index was the healthier, other things being equal, was the condition of the patient. If the index increased it indicated that the blood contained fewer salts or was richer in corpuscles, and that the urine contained more salts and that the functional activity of the kidney was increasing; if the renal index diminished then the kidney was becoming sluggish and less efficient, An index below 3 was abnormal and suspicious and an index below 2 was serious. Surgical interference in kidney lesions was contraindicated if the index was much below 3. The method was of value in surgical affections of the kidney where one kidney was chiefly affected and where there was a question of its removal; it afforded a means of testing the renal capacity so far as regards the elimination of salts and it was another attempt to apply precise scientific measurement to clinical medicine and surgery. He cited cases illustrating the value of the method as an aid in diagnosis and in directing future treatment.

The paper aroused considerable interest and in reply to questions asked in the course of the discussion, in which Dr. LEWIS JONES, Dr. HARRIS, Dr. PIRIE, Dr. J. A. MACDONALD (Taunton), and the PRESIDENT of the section took part.

Dr. DAWSON TURNER said that the resistance varied very little from hour to hour in any given patient or healthy individual; that the proportion of urea present seemed to have very little influence on the electrical resistance—a point, among others, which he had determined by the examination of a large number of artificial urines—and that sodium chloride was the only constituent that really mattered.

The PRESIDENT of the section in the course of his remarks congratulated Dr. Dawson Turner on the large amount of work which he had done to place the matter on a satisfactory basis and was convinced that the method would become a recognised one in the clinical diagnosis of renal inefficiency.

Mr. DEANE BUTCHER read a paper on

The Therapeutic Action of Radium,

in which he wished to lay stress on its great value in cases of pruritus. He cited cases in which it had proved successful after all other methods had failed, including the x rays. He also gave evidence of its value in birth-marks and rodent ulcer. It was a curious fact that what had been found to be a sufficient dose when applied to tissues had no effect on a

Sabouraud pastille, thus indicating a difference from an x ray tube. He considered that they were yet without a satisfactory explanation of the way in which radium produced its effects on living tissues. It resembled the action of the x rays in some ways but not in all.

Dr. LEWIS JONES had found good results from the use of radium but had recently given it up when treating rodent ulcer in favour of zinc ions. A disadvantage of radium was that it lost its power gradually.

Dr. DAWSON TURNER showed lantern slides of a case of rodent ulcer which had been completely cured by the x rays.

The PRESIDENT of the section said that while no doubt good results could be obtained in the treatment of birth-marks by radium, he felt that the risk of substituting a troublesome and unsightly telangiectasis for the birth-mark was one that militated very strongly against its use. His own experience in the treatment of nævi was a very large one, amounting to probably not less than 300 cases yearly, and he had yet to find a case in which a satisfactory result could not be obtained by electrolysis, puncture with a fine cautery, or the high-frequency spark, sometimes spoken of as "fulguration," the last being particularly suitable for that class of case known as "port-wine stain."

Mr. DEANE BUTCHER, in his reply, stated that there was no risk of the radium falling off in its power if proper precautions were taken to protect it from moisture. While glass was the best material it was inadmissible because it cut off the greater part of the rays which it was desired to make use of. His own specimen was contained in a platinum capsule with a cover of talc, so secured as to prevent moisture getting into the radium. As a further precaution he used a fresh wrapping of gutta-percha tissue for each case, this material having practically no obstructive action on the therapeutically active rays.

Dr. HARRIS read a paper on

The Diagnosis and Electrical Treatment of Nerve Injuries of the Upper Extremity.

It was based on 27 cases of injury to the shoulder selected from the out-patients attending the electrical department, now the department for nervous diseases, at St. Mary's Hospital. Of these 27 cases 16 had been dislocations of the shoulder, and in each case there had been paralysis of the deltoid and infraspinatus muscles, in many of the severer cases accompanied by anæsthesia over the outside of the shoulder and upper arm. These were not cases of partial Erb's paralysis, as was shown by the presence of the anæsthesia, but must be separate lesions of the circumflex and suprascapular nerves. The circumflex was no doubt damaged by the downward displacement of the head of the humerus dragging on the inferior muscular branch of the circumflex, which wound round the humerus, thus causing a paralysis of the deltoid, and in the more severe cases the cutaneous portion of the nerve was also damaged, causing anæsthesia. The infraspinatus muscle probably suffered in the following way: the downward displacement of the head of the bone carried the attachment of the infraspinatus into the great tuberosity downwards and forwards, thus dragging on the suprascapular nerve as it wound round under the acromion to pierce the under surface of the muscle. Usually in these cases the infraspinatus suffered more than the supraspinatus, but until wasting set in paralysis of the latter muscle was difficult to detect. In seven of the 16 cases the musculo-spiral nerve had been also damaged by traumatic neuritis, causing dropped wrist from paralysis of the extensors. In only one of these was the posterior cord damaged as a whole, in the remaining six cases the escape of the latissimus being evidence that the musculo-spiral nerve was damaged beyond the point of exit of the subscapulars, though at first sight the combined paralysis of the deltoid, triceps, supinator longus, and extensors in the forearm might suggest a lesion of the posterior cord. The musculo-cutaneous nerve suffered in six of the 16 cases, as shown by paralysis and wasting of the biceps, whereas the ulnar nerve suffered in only three cases and the median nerve in only two. One of the cases was so severe that every muscle supplied by the circumflex, suprascapular, musculo-cutaneous, musculo-spiral, median, and ulnar nerves was completely paralysed, with reaction of degeneration on electrical testing. That this was not a lesion of the primary nerves of the plexus was shown by the escape of the latissimus and pectoral muscles. Other evidences of severe neuritis in these cases would be pain, œdema of the hand, wasting of the finger pads, peeling of the thick skin on the palm, glossy skin, and later periarticular adhesions of the interphalangeal joints. This was a most serious disability and might cripple the hand permanently, long after the muscles originally paralysed had fully recovered. This complication must be treated early and continuously by passive movements of the finger-joints. The electrical treatment of the paralysed muscles was best arranged for by tying on flexible copper ring electrodes over the shoulder and arm and connected by wires to a galvanic battery through a Pohl's commutator worked by a metronome set to beat twice per second, the muscles being thus treated by reversals of a galvanic current of about six milliampères. Although dislocations of the shoulder from falling upon the outstretched arm thus were liable to produce lesions of the nerves to the upper extremity after their exit from the plexus, quite a different form of paralysis was liable to occur from falls upon the point of the shoulder. This accident was liable to cause a traumatic neuritis or even rupture of the fifth cervical nerve, the highest and most oblique of the primary nerves forming the brachial plexus. Damage to this nerve caused paralysis of the deltoid, supra- and infra-spinatus, biceps and brachialis anticus, supinator longus, the two radial extensors of the wrist, and the pronator radii teres, without any trace of anæsthesia. Five cases of this injury were described, one being due to prolonged pressure upon the arm in a painter lying prone upon the left arm for six hours painting a tombstone. In more severe injuries to the shoulder the sixth nerve as well as the fifth might suffer, causing weakness of the pectoral, triceps, and latissimus in addition, two cases of such injury being described resulting from severe crushes of the shoulder.

Dr. LEWIS JONES complimented Dr. Harris on his excellent paper and said that so far as he himself was concerned the paper required to be studied carefully before attempting to discuss it seriously.

The PRESIDENT of the section also concurred in what had been said by Dr. Lewis Jones and desired to ask Dr. Harris what his experience was in the treatment of ischæmic myositis coming on after tight bandaging, especially after fracture near the elbow-joint.

Dr. HARRIS, in reply, said that he relied mainly upon massage properly carried out to bring about an improvement in the affected muscles, though electrical treatment was of considerable value.

FRIDAY, JULY 31ST.

This day's proceedings were opened by Mr. C. THURSTAN HOLLAND (Liverpool) who read a paper to open a discussion on

The Uses of Bismuth in the Diagnosis of Conditions of the Œsophagus and Stomach.

The method employed by him was to give a dose of two ounces of carbonate of bismuth in mucilage, after having got ready to watch its progress into the stomach, the patient standing in an oblique position so as to allow the passage of the bismuth down the gullet to be seen clear of the shadow of the vertebræ. Full precautions were, of course, taken to protect the operator from the rays and the screen was so arranged that tracings could be taken of the shadows and necessary landmarks. Any obstruction to the free passage of the bismuth down the œsophagus was easily seen and noted, also diverticula, &c. The bismuth having reached the stomach the patient was first examined standing in the antero-posterior position and afterwards lying down. The alteration in the shape of the stomach shadow, as also its position between standing and reclining, was very remarkable. The paper was illustrated with a large number of tracings made in this way and also a number of radiographs. These were made not only at the time of taking the bismuth but also at intervals afterwards when it was desired to get some idea of the muscular efficiency of the gastric walls. The diagrams, &c., formed an essential feature of the paper, for a study of them showed that a surprising amount of information regarding the digestive tract can be obtained by this method. Indeed, by giving a bismuth meal it was possible to map out all the essential parts of the digestive tube by a series of radiographs taken at intervals. A curious fact was that these massive doses of bismuth seemed to have

no retarding action on the progress of the meal through the intestine. Another noteworthy statement by Mr. Thurstan Holland was that as a result of examining a large number of normal and (suspectedly) abnormal stomachs in various positions in this way he had come to the conclusion that not only was the shape of the stomach as given in the text-books a wrong one, but that there was really no true and fixed normal shape of stomach. He considered the use of a bougie loaded with mercury for locating obstructions in the œsophagus to be a distinctly dangerous one and that it did not possess any advantages over the bismuth emulsion which was perfectly safe.

Dr. A. E. BARCLAY (Manchester) continued the subject, showing a number of slides and diagrams of cases that had been examined by this method He also showed that percussion was of very little value in determining the size and shape of the stomach. He considered the use of bismuth carbonate to be perfectly safe in spite of the dangers ascribed to it so long as the pure carbonate was used, and he agreed with Mr. Thurstan Holland as to the danger of using the mercurial bougie.

Dr. A. F. HERTZ (London) considered that the oxychloride of bismuth was the most suitable salt to use in these examinations for the reason that it was chemically inert in the digestive canal. The carbonate had a neutralising effect upon the stomach contents and would in that way interfere with its normal movements. It was his practice to give two ounces of bismuth mixed with an ordinary meal such as porridge, or bread-and-milk, rather than suspended in mucilage. There was a tendency for the bismuth to stick to the mucous membrane after the main portion had passed on and this was a likely source of error, but not so likely if the bismuth was mixed with food.

Dr. C. LESTER LEONARD (Philadelphia) showed some lantern slides bearing on this question and took occasion to point out the great value of instantaneous radiography. He showed a radiogram of the stomach in which a fine peristalsis could be seen travelling down the greater curvature of the stomach. This, of course, would have been completely lost in an exposure lasting more than one or two seconds.

The PRESIDENT of the section considered that those present had listened to a very interesting and important discussion. Looking over the work of the section it was easily seen that medical radiography predominated and some of those present might remember that it was freely said and thought that the usefulness of x rays would be more or less limited to surgical cases. Speaking generally, it was more difficult to give diagnostic assistance in medical cases, but the great advances made during the last few years afforded eloquent testimony to the value of the work done. While in pulmonary disease radiography might be able to show very little that could not be discovered by an expert in physical diagnosis, still its value as a corroborative was immense. With regard to the present discussion he did not think anyone would be so rash as to say radiography had not really found out something quite new. It was an important feature of the study of gastric conditions by bismuth and the x rays that the shape and position of the stomach as they were taught to regard it were quite fallacious and that they must now remember that the stomach was a very mobile and elastic organ, having no fixed form or position even under normal conditions. He wished to congratulate Mr. Thurstan Holland, Dr. Barclay, Dr. Leonard, and the others who had taken part in the discussion on the valuable work which they had done. In this class of work he was sure that radiographers would find great assistance from instantaneous and tele-radiography. As in ordinary photography so also in radiography would they find that the rapid exposure would ultimately prevail.

Mr. THURSTAN HOLLAND, in his reply, did not agree with Dr. Hertz as to the bismuth sticking to the mucous membrane being a source of error. The amount would be so small that it could not deceive anyone of even limited experience.

Dr. W. IRONSIDE BRUCE (London) described

A New Method for the Localisation of Foreign Bodies.

A special apparatus which he had designed was shown and the method of using it was explained. The foreign body having been localised, the same apparatus was again placed in position when the patient was on the operation table and under the anæsthetic and then a needle was passed down and into the flesh, the point coming to rest at the foreign body which it was desired to remove.

Mr. J. HALL-EDWARDS (Birmingham) read a paper on

X Ray Dermatitis.

This was a very complete and exhaustive treatise on the subject and dealt with as no other person could do in view of the unusual amount of suffering and mutilation which he had himself endured. The paper was illustrated with skiagrams and coloured drawings and coloured photographs by the Lumière autochrome method. It was unfortunate that through lack of time Mr. Hall-Edwards had to abbreviate his paper in the reading.

The PRESIDENT of the section expressed his thanks and indebtedness to Mr. Hall-Edwards for preparing such an excellent paper.

The proceedings of the section terminated with a vote of thanks to the President and to the local honorary secretary (Dr. A. Rupert Hallam, Sheffield) who had made such excellent arrangements for the comfort and convenience of the section.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

THURSDAY, JULY 30TH.

Mr. GEORGE WILKINSON (Sheffield), President of the section, occupied the chair during part of the proceedings, and subsequently Dr. W. JOBSON HORNE (London), one of the Vice-Presidents, was chairman.

Mr. C. A. BALLANCE (London) and Dr. A. L. WHITEHEAD (Leeds) opened a discussion on

The Diagnosis of the Intracranial Complications of Middle-ear Suppuration.

Mr. BALLANCE, in his opening statement, touched upon the cardinal symptoms of (*a*) dural inflammation and extradural abscess; (*b*) venous infection; (*c*) meningitis; and (*d*) brain abscess. In extradural abscess and parasinus abscess there were headache at the site and tenderness. In venous infection fever was constant and high. In meningitis lumbar puncture was of service, both for diagnosis and treatment; negative evidence as regards bacteria and cells was of no value. Four-fifths of the cases of otitic brain abscess were associated with chronic ear disease; in one-fifth of such cases the ear disease was acute. Two instances out of three were not complicated with other intracranial lesions. He next considered the question of the existence or otherwise of an otitic intracranial complication: (*a*) in patients who were obviously seriously ill; and (*b*) in patients who complained of ear disease but who were not obviously seriously ill. In those that were obviously ill the onset was often said to be sudden and at times there was no suppuration; external mastoid signs might be absent. In those who complained of ear disease but who were not obviously seriously ill, death might be hastened by the lack of operation or by an operation limited to the mastoid. Vaccine treatment was most valuable. Speaking of the symptoms associated with labyrinthine suppuration, Mr. Ballance said that investigation of the labyrinth was only possible after the mastoid operation. Some special difficulties in connexion with the diagnosis of intracranial complications of middle-ear suppuration were next considered. Amongst these were mentioned complications arising from concurrent typhoid fever or acute specific disease or illness occurring in the same house; also old ear disease rekindled by septic infection elsewhere, so that the ear became a secondary seat of infection. In conclusion, attention was drawn to the indications afforded by certain modern methods of investigation, and more particularly to the value of leucocytosis.

Dr. WHITEHEAD, in his opening statement, discussed the indications of dural inflammation and extradural abscess. In the former there was commonly persistent headache. A profuse discharge out of proportion to the middle ear was suggestive of an abscess. Vomiting might be absent except in children. He mentioned the relative frequency of optic neuritis in the different forms of intracranial complications. Lumbar puncture he considered more confirmatory than diagnostic. In temporo-sphenoidal abscess the loss of power of naming objects was a valuable differential sign. In cerebellar abscess nystagmus was more frequent than was commonly thought. The rotation of the arm and forearm was difficult in cerebellar abscess. In children typhoid fever, followed by otitis and protracted convalescence, might be

suggestive of ingravescent cerebral or cerebellar abscess. In conclusion, Dr. Whitehead emphasised the importance in general practice of making an earlier, if less exact, diagnosis in the cases which they had under discussion. Persistent headache, with otorrhœa and no other causative factor, should put the practitioner on his guard against intracranial complications of middle-ear suppuration, and finally, it was important to bear in mind that the most dangerous cases might occur without there being signs or symptoms over the mastoid region.

Dr. W. S. SYME (Glasgow) cited a case in which the intracranial symptoms were attributed to puerperal conditions, whilst really they were due to otitis. This was confirmed three years later when at an operation the lateral sinus was found to be reduced to a thick cord.

Dr. STCLAIR THOMSON (London) pointed out the possibility of nasal complications having to be considered in making a diagnosis. The intracranial complications might be secondary to sphenoidal sinus disease. In washing out the sphenoidal sinus pain was not uncommonly referred to the occiput or the ear on the same side.

Mr. F. HUNTER TOD (London) was opposed to delay. Given a case in which the ear was affected and there was a rigor, then he was in favour of exposing the lateral sinus. He cited cases in which malignant endocarditis was confused with mastoid disease in the diagnosis, and also a case in which furunculosis alone was associated with malignant endocarditis. Uræmia might also confuse the diagnosis.

Mr. W. STUART-LOW (London) was in favour of repeating the lumbar puncture for diagnostic purposes.

Dr. J. STODDART BARR (Glasgow) urged a routine examination of the eyes, as optic neuritis afforded valuable information in several cases.

Dr. A. LOGAN TURNER (Edinburgh) discussed the signs of cerebellar abscess.

Dr. A. BRONNER (Bradford) was in favour of tying the jugular vein if rigors persisted, although the lateral sinus might be normal. He considered that intracranial complications were less frequent than eight or ten years ago, and this he attributed to improved methods of treatment of ear disease by practitioners.

Mr. T. G. OUSTON (Newcastle-on-Tyne) cited a case in which lumbar puncture had been a failure; post mortem the failure was found to be due to the sheaths of the canal being cut off and blocked with old tuberculous disease.

Dr. ANDREW WYLIE (London), Dr. J. WALKER DOWNIE (Glasgow), and Dr. G. WILLIAM HILL (London) also took part in the discussion.

The PRESIDENT of the section, in briefly summing up the debate, pointed out that the exploration of the brain through a septic focus was a serious matter in view of the lack of resisting power of the brain to septic material. He thought that there might be a tendency for practitioners to be led away by published results and to adopt exploratory operations too readily.

Mr. BALLANCE, in reply, agreed that the negative exploration of the brain was a calamity. In cases of possible labyrinthine complication he advised following the disease through from the mastoid operation. Optic neuritis was due to basal meningitis, although perhaps it might only be microscopic in extent. It was therefore an intracranial complication and the case should not be watched but treated.

Dr. WHITEHEAD also replied.

Mr. A. R. TWEEDIE (Nottingham) read a paper entitled "Investigations on 'Deaf Mutes' as to 'Labyrinthine' Nystagmus."

Dr. P. WATSON WILLIAMS (Bristol) gave a demonstration of an Osteoplastic Operation for Accessory Sinus Disease.

Dr. STODDART BARR read a paper entitled

Remarks on Paralysis of the Sixth Cranial Nerve, consequent upon Chronic Purulent Middle-ear Disease, with Reports of Two Cases.

The first case was that of a lad, aged 17 years, who had suffered from purulent discharge from the right ear for 16 months. Headache, vomiting, and slight shivering supervened a fortnight before admission to hospital, while double vision with squinting of the right eye had existed for five days. Double optic neuritis was found in addition to paralysis of the right sixth cranial nerve The mastoid antrum which was diseased was opened, the sigmoid sinus exposed, and a small perisinus abscess evacuated. The walls of the sinus were covered with granulation tissue. No other pathological changes were found. The paralysis of the sixth nerve passed off in three months and the optic neuritis in six months, leaving normal vision. The mastoid cavity was epidermised in four months. The second case was that of a boy, aged 13 years, who had purulent discharges from the left ear from babyhood. Treatment had been prescribed but had been neglected. Urgent symptoms, consisting of pain in and behind the left ear, swelling and tenderness over the mastoid, vomiting, and bleeding from the nose, commenced four weeks before admission to the hospital, and left facial paralysis with double vision and squinting of the left eye supervened a week later. Double optic neuritis was found present on admission. The radical mastoid operation was performed, revealing here also a perisinus abscess. The walls of the sinus were thickly covered with granulation tissue. The facial paralysis rapidly subsided, but four months elapsed before the function of the sixth nerve had quite recovered, while eight months elapsed before the optic neuritis had completely passed off, leaving, however, normal vision. The operation cavity was dry four months after the operation. The mode of involvement of the sixth cranial nerve in such cases and its frequency and significance were discussed, special reference being made to the valuable work done in connexion with this subject by Professor Gradenigo. Specimens having anatomical and pathological bearing upon the subject were shown.

The paper was discussed by Dr. WATSON WILLIAMS, and Dr. JOBSON HORNE, in thanking Mr. Ouston for it, said that its value had been considerably enhanced by the exhibition of the specimens which supplied the concrete evidence.

Mr. OUSTON read a paper entitled

"*A New Operation for Depressed Fractures of the Nose.*"

After a few introductory remarks upon fractures of the nasal septum and dislocation of the lateral nasal cartilages, Mr. Ouston went on to state that if external deformity resulted from the injury the child was brought for surgical advice and one of the following opinions was probably given: (1) that the child would grow out of it; (2) that nothing could be done; (3) that the surgeon would try to rectify the condition by an operation but that success was very doubtful; or (4) that after the child had attained full growth the deformity could be corrected by the injection of paraffin. Time would show the fallacy of the first opinion. The second was eminently unsatisfactory, albeit honest in intent. The third had been given four times in four cases by Mr. Ouston; the first two results were failures, the third, however, was a success. The method by which this success was obtained was as follows. The patient, a girl, ten years old, had fallen on to her nose a few weeks previously. The upper lateral cartilages were displaced backwards from the nasal bones and separated posteriorly from their attachments to the nasal processes of the superior maxillæ. The lower end of the nasal bones projected with a depression below them where the triangular cartilage was markedly indented. The general appearance was that of a flattened nose with a sharper indentation at the lower trisection of the nasal crest. At the operation a tenotome was introduced subcutaneously through the side of the nose at the site of the depressed nasal cartilage dividing the structures uniting them posteriorly with the nasal bones and nasal processes of the maxillæ. The knife was also carried through the septal cartilage at the level of the posterior border of the lateral cartilages, and this structure with its adherent mucous membrane divided to an extent corresponding to the length of these cartilages. The separation was continued until the whole structure of the nose corresponding to the depressed portion could be easily lifted by the tenotome (transfixing the nose) to the normal level. The nasal bones were then transfixed by a large strong needle as near their common anterior sutures as possible, this being easily effected by means of sharp taps from a metal mallet. The structures of the nose were then transfixed by a second needle at a site beneath the depression and on a plane distinctly posterior to that of the first needle. Strips of gauze were then wound round the two needles on each side respectively in a figure of 8 manner. The upper needle firmly imbedded in the nasal bone acted as a fixed point, and on

tightening the strips the lower needle carrying the depressed structures before it, was lifted upwards and forwards, thus rectifying the deformity. Some local swelling of the parts resulted but no constitutional disturbance. The child, who was a good little patient, suffered no after-pain and appeared quite happy and contented during the ten days in which the needles remained *in situ*. On removing the needles it was seen that small pressure ulcers had formed at the sides of the nose where the tightened gauze had been in contact with the skin; these, however, healed in a few days. Six months had elapsed since the operation and the nose so far had maintained its shape. Whether the nose would continue to grow in the way that it should grow was, however, a question which only the future could determine. The reason of the failure in the previous cases was due to inability to maintain the corrected position of the parts until fixed by the process of healing.

FRIDAY, JULY 31ST.

Dr. STCLAIR THOMSON opened a discussion on

The Methods of Dealing with Suppuration in the Maxillary Sinus,

with a paper of which the following is an abstract.

The methods available are: (1) spontaneous resolution, aided by general hygiene, the administration of drugs, topical applications, and the extraction of teeth; (2) nasal lavage (*a*) through the ostium maxillare, or (*b*) through the antro-nasal wall; (3) buccal lavage (*a*) through the canine fossa, or (*b*) through a tooth socket; and (4) operations through the antral walls (*a*) by an opening through the canine fossa only (Desault's or Küster's operation), (*b*) by an opening through the canine fossa and a second opening through the antro-nasal wall (Caldwell-Luc operation), (*c*) the Caldwell-Luc operation, as modified by Denker and by Boenninghaus, and (*d*) by an opening through the antro-nasal wall only (proposed by Mikulicz and Krause, and further developed by Claoué, Réthi, and others). The selection of the most suitable method will depend on whether the suppuration is (1) acute and recent; (2) uncomplicated and chronic; or (3) complicated with suppuration in other cavities. 1. An acute sinusitis may last several weeks and resolve without operation. Or it may become subacute and take six months before disappearing without surgical interference. 2. As regards an uncomplicated, chronic, maxillary sinusitis, it will have to be considered whether the classification of Lermoyez into (*a*) chronic empyema, and (*b*) chronic sinusitis, is always available and how it influences treatment. Mahu's method of gauging the capacity of the affected sinus and thus forming a conclusion as to the condition of its mucosa might also be debated. 3. When complicated with suppuration in other cavities, the first point to be decided, if possible, is whether the maxillary sinus is simply a receptacle for pus secreted elsewhere. The next point is the order in which the sinuses should be operated on when they cannot all be treated at one sitting. Conclusions: 1. In cases which come under observation while in the acute or subacute stage, spontaneous resolution may be expected. If cure is delayed puncture and lavage through the antro-nasal wall are indicated. If a suitable tooth socket is available, lavage through the alveolar border might be employed instead. All suspected teeth should be removed. 2. In chronic, uncomplicated maxillary sinusitis the best hope of complete cure is effected by the Caldwell-Luc operation. The intra-nasal route requires full consideration and discussion is invited on its indications, methods, and results. Permanent lavage through the alveolus is reserved for patients where more radical measures are objected to and when age or health does not permit them. The drawbacks of this method must not be forgotten. 3. In complicated cases a complete diagnosis should be formed before starting surgical measures. Alveolar drainage, when available, should first be instituted, both to facilitate diagnosis and to diminish the septic intensity of the retained contents. The ethmoid next demands treatment and the sphenoidal orifice should be enlarged. A frontal sinus operation should take precedence of the maxillary. If the latter is being drained through a tooth socket the radical operation can be deferred until (by progress) it is determined that the antrum is really diseased and not simply a reservoir. If alveolar drainage is not available then an intra-nasal opening should be made at the time of the frontal operation. A sound tooth should never be sacrificed, as the curative effect of alveolar drainage is uncertain. Free drainage being of prime importance plugs should be avoided.

Dr. LOGAN TURNER submitted the following proposition for consideration. Could any assistance regarding the best method of procedure be derived from a study of any one or any combination of the following points: (1) the age of the patient; (2) the duration of the discharge from the sinus; (3) the presence or absence of nasal polypi; (4) the etiology of the condition, nasal or dental infection; (5) transillumination of the sinuses; (6) cytology of the discharge; and (7) the bacteriology of the discharge. If treatment by lavage were decided upon did the nasal or buccal route give the better result? Dr. Turner then considered in detail the foregoing points. 1. As regards age, the older cases were cured just as well as the younger by lavage. Age made no difference but lavage was preferred in old people. 2. Recent cases he regarded as those under one year's standing and 84 per cent. of the cases in his series had been cured by lavage. Cases in which the discharge from the sinus had extended over one year he regarded as chronic. 8 per cent. of the latter cases that had come under his care had been cured by lavage. 3. As regards the presence or absence of nasal polypi, out of 180 cases only 18 had polypi; of these 18, 15 were treated by lavage and 10 were cured. In 19 cases with no polypi lavage had failed to effect a cure. The presence of polypi was generally evidence of some other sinus being affected. 4. As regards the etiology of the condition, out of 180 cases the etiology was definite in 117. As regards the question of nasal or dental infection, bad teeth were not to be readily accepted as the cause. Passing to the cytology and the bacteriology of the discharge, the pus was examined cytologically in 25 cases and bacteriologically in 62. In recent cases staphylococci were found in 72 per cent. and streptococci in 21 per cent. In chronic cases lymphocytes and myelocytes were looked for; the latter were not found, probably on account of there being not much bone affection. The more advanced changes in the epithelium lining the antrum occurred in the lower part, the ciliated epithelium might still be present in the upper part, as was found in a case after six years' duration of the discharge. The presence of streptococci and squamous cells indicated that the radical operation was called for, whilst the presence of staphylococci indicated that lavage might suffice.

Mr. HERBERT TILLEY (London) said that lavage in the acute stage relieved the pain and the case got better more quickly. He advocated the removal of the anterior third of the inferior turbinate body in the radical operation.

Mr. C. A. PARKER (London) was in favour of the performance of the intra-nasal operation in the first instance. It was free from the slight risk of the Caldwell-Luc operation, and if it did not suffice then the latter could be proceeded with.

Mr. R. H. WOODS (Dublin) considered that the inferior turbinate body of the nose was treated with too little respect in operations for the relief of suppuration in the antrum; it was removed too often.

Dr. DAN MACKENZIE (London) was against alveolar puncture and was in favour of the intra-nasal operation and of the use of a larger intra-nasal tube.

Dr. WATSON WILLIAMS spoke in favour of the Caldwell-Luc operation through the canine fossa as more reliable than the intra-nasal methods.

Dr. N. C. HARING (Manchester) remarked that the latent cases were dark to transillumination after the operation. He was against the intra-nasal operation.

Mr. STUART-LOW spoke of the regeneration of the mucous membrane lining the antrum.

Mr. GEORGE JACKSON (Plymouth) referred to the presence of polypi and the importance of treating caries of the ethmoid. If omitted, recurrence was liable to take place.

Dr. JOBSON HORNE (London) attributed the divergence of opinions as to lines of treatment to a lack of knowledge of the etiology. He expressed his thanks to Dr. Logan Turner for his paper which had gone in the right direction to supply that knowledge. Dr. Horne referred to some researches which he made into the bacteriology of the disease some ten years previously, the results of which practically coincided with those of Dr. Logan Turner. Incidentally he mentioned that some of the organisms referred to were not uncommonly

found in a normal antrum, and one had to discriminate between a pathogenic and a non-pathogenic rôle. He was opposed to packing the antrum after the first 24 hours following the radical operation.

The PRESIDENT of the section summed up the discussion and the openers replied.

Dr. STCLAIR THOMSON agreed that the antrum was dark to transillumination at times after a cure had been effected. The wound in the canine fossa made in the radical operation required no stitches; the parts falling naturally into apposition it closed up of itself.

Dr. LOGAN TURNER was also of the opinion that the lines of treatment should be put upon a scientific basis, and he was not in favour of opening an antrum for the purposes of diagnosis. He also had found that the chronic cases continued to be opaque to transillumination after treatment and when there ceased to be evidence of discharge.

Mr. CHARLES A. PARKER (London) read a paper on

Accessory Air Cells in the Septum Nasi, an Unusual Development of the Sphenoidal Sinuses.

He exhibited some skulls and diagrams demonstrating the presence of the cells referred to in the paper.

Dr. WALKER DOWNIE read a paper entitled

"*On the Permanence of the Improvement in the Shape of the Nose obtained by the Subcutaneous Injection of Molten Paraffin, based on an experience of over Two Hundred Cases.*"

Two questions were considered: (1) Was the paraffin after being injected into the nose affected in any way by the external temperature? and (2) Was the result obtained from its introduction permanent? In regard to the first question, Dr. Downie's experience went to prove that climate exercised no effect whatever on the paraffin lying in the subcutaneous tissues, nor did exposure to a high temperature, such as was necessary in the pursuit of certain occupations, affect it in any way. In regard to the second question, he held that if paraffin having a melting-point of from 108° to 110° F. were used, if it were injected in the molten state, and if the necessary precautions were taken to prevent it spreading beyond the depressed area, the paraffin did not subsequently "wander" and it did not become absorbed, but that it remained permanently in the position which it occupied when it became solidified in the tissue.

Dr. JAMES ADAM (Hamilton) read a paper entitled

"*Remarks on the Pathology and Treatment of Atrophic Rhinitis.*"

The paper was based upon the work of the last two years and was limited to 29 cases because on these alone Dr. Adam had had the chance of making a thorough examination. In his introductory remarks he acknowledged his indebtedness for much laborious and careful histological work to Dr. John Anderson, the pathologist to the Victoria Infirmary, Glasgow; for bacteriological observations to Dr. R. M. Buchanan, city bacteriologist, Glasgow; for preparing vaccines from Abel's bacillus to Dr. Ian Struthers Stewart of Edinburgh; and for treating two cases with x rays to Dr. William Allen of Glasgow. Dr. Adam had arrived at the following conclusions: 1. There were two types of atrophic rhinitis, that with and that without sinusitis; they might be the same diseases histologically but clinically and for treatment they were not. In treatment until the rhinologist had found sinusitis he ought to be always ready to revise his diagnosis, and where the pharyngeal condition predominated to suspect sphenoid disease. 2. Atrophic rhinitis was the end stage of a purulent hyperplastic rhinitis, involving first the membrane, then in more than half the cases the sinuses; they by a vicious circle reacted on the membrane. 3. This purulent rhinitis resulted from microbic action and was most likely to occur in persons who were more than usually liable to mucous inflammation or who had structural peculiarities of their sinuses. Crusting and fœtor were favoured by width of nostril and by the presence of Abel's bacillus, the toxins from which might also accelerate atrophy, but fœtor was not a necessary accompaniment, and therefore "ozæna," the name of the symptom, ought to be abandoned as the name of a disease and Gottstein's definition shortened to rhinitis atrophicans. The treatment of the condition was its treatment in the hyperplastic stage. All purulent rhinitis in children, especially a sequela of eruptic fevers, ought to be persistently dealt with. Every case of purulent rhinitis ought to be regarded as one of sinusitis till the contrary was proved. The folly of paraffin injection before diseased tissues had been treated was obvious. Mentioning the benefits to be got from cleansing, packing, and the use of the sucker, as also the improvement often got after the treatment of sinusitis, he referred to the following three points. 1. Paraffin injections gave good results when there was no sinusitis, when the membrane was not too thin to hold the paraffin; they should be preceded by massage to strengthen and stimulate the membrane; should be done with solid rather than with liquid paraffin, though he had known both cause thrombosis, and though solid paraffin often came out as fast as injected. By slowing evaporation and preventing crusting it sometimes got rid of the need for douching; by helping to obliterate the glands it aided nature's method of cure. He had had fair or good results in only four cases, for he had been experimenting lately with ionisation. 2. The recesses of the nasal fossæ were packed with strips of gauze or cotton soaked in a 10 per cent. watery solution of argyrol or a 1 to 2 per cent. zinc sulphanilate. One or two thin zinc rods similarly covered were placed amidst the packing and connected to the positive pole, the negative being on the neck, the vestibule insulated with gutta-percha tissue; 10 to 20 milliampères were passed for from 10 to 20 minutes, repeated once in five or seven days. This after two or three months gave good results in two or three not very advanced cases; whether the results would continue to be worth the trouble remained to be seen; one case had relapsed after a severe cold. After the best results by any method such mucous membranes remain very vulnerable and readily take on purulent inflammation on slight provocation. 3. Dionisio claimed good results with light treatment; the tediousness of the method caused Dr. Adam to try the x rays in two cases; this failed, as it could hardly help failing, for want of a proper tube which was now being made.

The proceedings closed with a cordial vote of thanks to the President of the section.

PHYSIOLOGY.

WEDNESDAY, JULY 29TH.

This section met under the presidency of Professor E. H. STARLING (London).

Dr. J. B. LEATHES (London) opened a discussion on

The Physiology of Purin Metabolism.

He reviewed some of the different opinions held upon this subject up to the present time and proceeded to state the conclusions to which his own experiments had led him. He did not consider it possible to lay down any fixed rule regarding the purin metabolism of any individual in identical conditions. He had found with regard to the secretion of endogenous uric acid that it was markedly increased by fever and exposure to cold and after severe exertions. The increased output coincided and terminated with the febrile rise of temperature, coincided with and outlasted by many hours the exposure to cold, followed the exertions and lasted for many hours after them. It was suggested that in all these three conditions the uric acid had its origin in metabolic processes occurring principally in the voluntary muscles and not immediately related to voluntary contractions and work. The daily tide in uric acid excretion, high output in the morning, the maximum being attained about 10 A.M., and low output at night, was not due to retention of uric acid formed during the night; nor was it due to the fact that the digestive organs were inactive during the night, if that were a fact, with the last meal taken at 9 or 10 P.M., as in most of their experiments. It was rather due to the quickened activity of all functions, especially those of the voluntary muscles, which resulted from the rest of sleep. Generally speaking, he considered that the more lively the performance of the functions of the body as a whole, the greater the amount of uric acid produced would tend to be. The endogenous uric acid tide was independent of food. He did not believe in the retention of uric acid in the system, for the kidneys always got rid of it. The exogenous secretion of uric acid was, on the other hand, affected by foods, but a given food might increase its elimination without in itself containing any purin bodies.

Dr. D. CHALMERS WATSON (Edinburgh) dealt with the clinical aspect of the subject. He referred to the results of his earlier observations on the excretion of uric acid in gout,

which had proved that in typical cases of gout there was an actual increase in the excretion of uric acid in the urine in place of a marked decrease as was formerly supposed. He was in perfect agreement with Dr. Leathes as to the lack of evidence of the retention of uric acid in the system on which some writers laid stress. In recent years the view that uric acid was the cause of gout had been almost universally abandoned; coincidently, there had occurred a widespread adoption of the view that excess of purins was the main etiological factor in the development of the disease. Dr. Watson desired to raise a protest against the too ready acceptance of this view, since its general acceptance at the present time would retard knowledge of the etiology of the disease. There was no clinical or experimental evidence to indicate that the purins were responsible for inducing the clinical features of acute or chronic gout. His investigations had shown that diet could modify the structure of different tissues without apparently in many instances modifying the general health of the subject. There was little doubt that in these circumstances the chemistry of the animals was modified and also their predisposition to different diseases. He thought that future investigations into the pathology of purin metabolism and gout should include not only a study of metabolism along well-recognised lines but also an investigation into the structure and functions of important glands along lines suggested by the results of recent researches.

The discussion was continued by Dr. E. I. SPRIGGS (London), Sir LAUDER BRUNTON (London), Professor T. H. MILROY (Belfast), Dr. GUSTAV MANN (Oxford), Dr. F. G. HOPKINS (Cambridge), and the PRESIDENT of the section.

THURSDAY, JULY 30TH.

The chief interest of the work of the section on this day centred in a discussion on

The Causes of Dyspnœa.

Dr. J. S. HALDANE (Oxford), in opening, defined dyspnœa as any condition in which the breathing is accompanied by undue effort or discomfort or is very distinctly abnormal in type. He gave a short general summary of the factors regulating the activity of the respiratory centre, showing that under normal conditions the amount of air breathed was so regulated as to keep the partial pressure of CO_2 in the alveolar air and arterial blood constant, deficiency of oxygen having no influence in the matter. Different influences passing up the vagus nerve had an important influence in guiding the action of the respiratory muscles, but had little or no influence on the amount of lung ventilation. If the amount of CO_2 in the alveolar air became abnormally low the respiratory centre was excited by a lower partial pressure of CO_2. This modification was probably due to the formation of some substance, such as lactic acid, to which the respiratory centre was sensitive and which acted in the same direction as CO_2. He claimed that deficiency of oxygen played no part in regulating the respiratory centre. Various pathological conditions which are accompanied by dyspnœa were reviewed in the light of the conclusion just stated.

Dr. LEONARD E. HILL (London), who followed, attached much importance to the oxygen amount as a respiratory regulator.

Dr. M. S. PEMBREY (London), Dr. R. J. EWART (Liverpool), Dr. HOPKINS, and the PRESIDENT of the section also took part in the discussion.

Dr. P. T. HERRING (Edinburgh) read a paper, illustrated by a lantern demonstration, upon Changes in the Pituitary Body after Thyroidectomy.

The following papers were also accepted by the section. By Dr. N. H. ALCOCK (London): A New Apparatus for Chloroform Anæsthesia with Known Percentages of Vapour. By Dr. J. S. GOODALL (London) and Mr. H. G. EARLE: The Pancreatic Juice in Glycosuria. By Dr. GOODALL: Appetite—An Attempt at Analysis of the Psychic Factor. By Professor R. J. ANDERSON (Galway): The Question of Suggestion in its Physiological Aspects.

TROPICAL DISEASES.

THURSDAY, JULY 30TH.

The proceedings were resumed in this section, Lieutenant-Colonel Sir HAVELOCK R. CHARLES, I.M.S., being in the chair.

Sir PATRICK MANSON (London) opened a discussion on

Sanitation in Reference to Ankylostomiasis in the Tropics.

He said that it might have been thought that considering the vast extent and importance of her tropical possessions Great Britain would have been the first to grapple with the ankylostomiasis problem. It was not so, however, and it was, indeed, little to her credit that the youngest of colonising powers, the United States of America, had been first in the field and by her efforts in Porto Rico, Havana, and Panama had set them an example and shown what could be done by intelligent and energetic tropical sanitation. Ankylostomiasis occurred in all tropical and subtropical countries; in some rural districts 50 to 90 per cent. of the inhabitants were infected. Some writers regarded it in the aggregate as a more serious scourge than even cholera or yellow fever. Surely it was a matter of primary importance that if at all feasible the problem of a special and appropriate sanitation should be faced. The life-history of the cause—namely, of the worm—was adequate basis on which to found such sanitary measures, and that life-history they now knew. They might attain success by expelling the mature worm or by preventing the hatching out of the egg, or by killing the larva, or by preventing contact of the larva with the skin, or they might succeed by combination of two or more of these methods. Any attempt to eradicate ankylostomiasis by the administration of anthelmintics to the entire population of an infected area was bound to fail. It would be greatly beneficial as regards the individuals treated but not radical as regards the community because the drugging could not be efficiently carried out and fresh infection would constantly be introduced from without. Other relatively expensive measures such as the compulsory use of shoes to avoid contact with contaminated soil would never be employed. In common with many others he regarded fæcal disposal as the crux of the ankylostomiasis problem. Under ordinary conditions of native life it was the only practicable method of effectively dealing with the endemic, and meanwhile he thought that other measures had better not be pressed so that all available funds and energy should be directed to carrying out the least expensive, least irritating, and most efficient—viz., fæcal disposal. It was quite feasible, in his opinion, to get the coolie or native to drop his excrements into a hole in the ground and without contaminating the surrounding soil. The ankylostoma eggs in the absence of oxygen would not hatch, or if hatched out the larvæ would have no opportunity of getting at the human skin. In tropical countries treatment of fæces by chemicals or desiccation was out of the question if only on the score of expense. In European-owned or large native plantations or factories there would be no difficulty in establishing appropriate methods for the disposal of fæces. The Government had merely to decree that latrines of a particular type must be used and to enforce their use by fine if necessary, but it was otherwise with native villages and scattered communities. To get at these he would suggest that the responsibility for the observance of a latrine ordinance should be fixed on some local notable or head man selected by each village, community, or district, that he should be made responsible to the medical officer of the district, who in turn would be responsible to the surgeon-general of the colony, and that an inspector-general should be appointed for each group of colonies and be responsible to the Secretary of State for the effective carrying out of ankylostomiasis prophylaxis. As a subsidiary measure he would suggest making use of local post offices for the sale at cost price of anthelmintics just as had been done so successfully in India in connexion with quinine. The scattering broadcast of leaflets or posters explaining in simple language the symptoms, nature, treatment, and prophylaxis of ankylostomiasis, and above all the teaching in schools, would be of much value. Should these measures prove successful, more attention might be given to the prevention of the introduction of ankylostomiasis by coolie-ships and otherwise. The matter of ankylostomiasis was a serious one for the tropics and should be faced.

Dr. W. F. LAW (British Guiana) read a paper on

Ankylostomiasis in British Guiana.

He said that ankylostomiasis was a serious disease in British Guiana. The infection was being regularly conveyed from India by newly arrived immigrants. Possibly it did not exist in the colony prior to immigration. Now it was widely distributed and affected to a very serious degree the health of the labouring population. With regard to treatment he preferred β-naphthol to thymol. It was quite as efficacious

and was not followed by any unpleasant effects. The question of prevention might be summed up in one word, "latrines." It had been a struggle of years to get employers of labour to recognise the need for latrine accommodation. When he first advocated it he was met by the objection that the coolie would never use them, but experiment had proved that that was not the case.

Dr. G. A. TURNER (Transvaal) read a paper on

Ankylostomiasis in South Africa.

He gave an account of the geographical distribution of ankylostomiasis amongst the natives of South Africa, based on microscopical examination of fæces and on necropsies. The disease was absent from all the temperate parts such as Cape Colony (excepting De Beers mine), Orange River Colony, Basutoland, Bechuanaland, and most of the Transvaal. Gold miners on the Rand, both European and coloured, were not being infected there or, at any rate, only to a very trivial extent, notwithstanding that infection was pouring down the mines daily and hourly. Probably this was due to several factors, such as the acid reaction of the mine waters, the low temperature of some mines, and the dryness of some workings. One mine was an exception to the general rule; it was a deep, wet mine with a high temperature and alkaline-reacting water. In this mine every European employed who went below ground contracted the disease.

Dr. A. MAY (Government bacteriologist, Transvaal) presented

A Preliminary Report on the Inhibitory Action of Dilute Solution of Acid on the Development of the Ova of the Ankylostoma Duodenale.

His experiments showed that dilution of sulphuric acid up to the strength of 0·07 per cent. did not prevent the development of the ova into larvæ but prevented further growth. Dilutions of 0·25 to 1 per cent. of acid seemed to prevent the development of the ova.

Dr. L. NATTAN-LARRIER (Paris) made some remarks on the treatment of ankylostomiasis by thymol and filix mas.

Dr. L. W. SAMBON (London) said that, with Stiles and Manson, he was thoroughly convinced that the proper disposal of the fæces was by far the most important measure for the prevention of ankylostomiasis. All other measures would be useless if the infective excrements continued to be scattered over the soil and they would be unnecessary if the same were properly disposed of. He must say at once, however, that that statement was based on the belief that the endemic anæmia of man was caused by a worm incapable of affecting any other host and that their knowledge of the life-history of that parasite was now correct and complete. Unfortunately those premisses were disputable. In the first place, the endemic anæmia of man was not everywhere due to one and the same parasite. They already knew that besides ankylostoma duodenale they had to consider necator Americanus and triodontophorus diminutus. Possibly other forms would be found. Those already known belonged to different genera, and two of them were known to have a world-wide distribution. Secondly, it was not definitely proved that these parasites belonged to man exclusively, and that all allied forms in the lower animals were specifically distinct. The forms found in apes appeared to be identical with those of man, and Schaudinn had succeeded in infecting monkeys with ankylostoma duodenale. Moreover, other species, such as ankylostoma caninum, occurred in a number of different hosts. Thirdly, there were many points in the life-history of those parasites which were still obscure. They did not know the relative importance of mouth and skin infection. When introduced by the mouth did the larvæ invariably pass straight down to the intestine? Might they not penetrate the walls of the œsophagus? They were rarely found in the stomach and duodenum. They had been seen in the walls of the œsophagus and in the stomach beneath the epithelium. They knew that the immature worms might appear in the jejunum and upper part of the ileum as soon as 42 hours after penetrating the skin, but they did not know how long they might tarry over their migrations. They had been found in the lymph glands and other organs at a stage of growth which as a rule they only attained after reaching the intestine. According to Looss the parasites after penetrating the skin forced themselves into the cutaneous veins and, carried by the blood, reached the right heart, then the lung. Here they passed from the vessels to the air cells, and finally creeping up the air passages they crossed over the larynx and slid down the œsophagus to the stomach and then to the small intestine. Of course Looss had thoroughly proved in the case of ankylostomiasis the truth of the old popular belief that certain parasitic worms might enter the body by way of the skin, and his experiments with ankylostoma duodenale and ankylostoma caninum had been confirmed by numerous and able investigators not only with these worms but also with necator Americanus and strongyloides stercoralis. He was also perfectly aware that, as pointed out by Looss, the larvæ of ankylostoma duodenale reached the lungs and might be found in considerable numbers either in the walls of the air passages or within their lumen. Indeed, Rainey had found them in the trachea half a century before Looss. But as he (Dr. Sambon) had stated elsewhere, he doubted the correctness of the last part of the journey from trachea to jejunum as traced by Looss viâ the larynx—œsophagus—stomach—duodenum, or at any rate he did not believe it could be the usual route. He (Dr. Sambon) believed that the majority of larvæ penetrated the lumen of the jejunum and upper part of the ileum through the wall of the bowel. In evidence he would point to the absence of parasites in the stomach and duodenum, to the intense hæmorrhagic inflammation of the jejunum at the beginning of the infection and entirely subsiding later notwithstanding the presence of enormous numbers of parasites in the intestine, and to the actual presence of immature worms in blood-filled spaces beneath the intestinal mucosa observed again and again by Bilhari, Griesinger, Sonsino, Grassi, and others. Finally, he thought that analogy with the life-history of other intestinal worms supported this mode of entrance. Then, again, they did not know how long the adult worm might live within the intestine. Some said weeks, others months, others years. They knew for certain that the females matured and began to discharge their ova about four weeks after penetrating the skin. The process of egg-laying might continue for a considerable time, but it was unlikely that the longevity of the parasite might explain infections of 8, 15, or 20 years' duration. It would be important to ascertain the exact rôle played by reinfection in such cases. With regard to the anæmia, they were still uncertain whether to ascribe it to blood-abstraction, to venom secreted by the head-glands of the parasite, or to secondary infection. The blood-abstraction theory had been considerably shaken of late since it had been practically demonstrated that the parasite was not a true blood-sucker. The toxin theory had more partisans than facts in its favour; the microbic theory seemed more in accordance with recent investigations. Certainly many individuals harboured the worm without showing any signs of obvious illness, and perfect health did not appear to be inconsistent with the presence of hundreds of parasites. These and many other questions in the life-history of the parasite were of the highest importance with regard to the prophylaxis and treatment of the infection and should be thoroughly worked out because the more complete their knowledge of the bionomics of the parasite the better their chances of efficient prophylaxis and treatment. In the present state of their knowledge, which was no doubt correct in the main lines, they could safely state that the prophylaxis of ankylostomiasis lay chiefly in the proper disposal of the infected excreta. Besides, any measure taken against fæcal contamination of the soil would be amply repaid because it would not only tend to stamp out ankylostomiasis but also many other diseases due to bacteria, to protozoa, or to metazoan parasites which left the body by way of the intestine. And he would again point out, as he had done at a previous meeting some years ago, that whatever was the method employed, human fæces should never be used for agricultural purposes because they were far too dangerous, especially when used for the manuring of vegetables that were eaten raw. It would be a great mistake to rely on fermentative processes or even chemical disinfection to render contaminated fæces innocuous. The powers of resistance shown by the spores of certain worms, the encysted stages of certain protozoa, and the ova of certain worms were almost incredible. If they could not be destroyed in the laboratory how could they expect to destroy them in nature? Whilst modern science had only recently

apprehended the cause of endemic anæmia and was only just beginning to consider what steps might be taken for its eradication, the ancient Egyptians appeared to have had a correct knowledge of its etiology and to have adopted measures for its treatment and prophylaxis. According to Scheuthauer and Joachim the famous papyrus Ebers (1550 B.C.) rightly ascribed the disease to an intestinal worm, and von Oefele had pointed out that a connexion between the disease and the carrying and handling of sand was fully recognised. Might not the extraordinary veneration of the ancient Egyptians for the dung-beetle, the Ateuchus sacer of modern entomologists, be connected with the prophylaxis of ankylostomiasis and other infections spread by the means of contaminated fæces? He made the suggestion merely as a matter of archæological curiosity. They all knew what an important part the scarab played in the theogony of the banks of the Nile. This remarkable insect was represented on all the monuments of the Pharaohs from the great Delta to the very heart of Nubia; it was carved of all dimensions and in every possible material more frequently than any other figure. Evidently the ancient Egyptians, perfectly cognisant of the benefit derived from this wonderful scavenger beetle, looked upon it as a tutelary god. That suggestion seemed to him more plausible than any of the fanciful reasons hitherto advanced to explain why they considered the dung-beetle as sacred. In support was the fact that other animals likewise had been consecrated by the Egyptians in order to protect and to preserve them on account of the beneficial action which they exercised in keeping down vermin. He need but mention the cat, the kestrel, the viper —natural enemies of the plague-conveying rat. In 1900, in the Roman Campagna, he had had the opportunity of studying the habits of the sacred dung-beetle, and he had been struck by the rapidity with which excreta, scarcely dropped, were cut up, formed into pellets, and buried deeply in the soil. It would be impossible to find a more perfect method of fæcal disposal.

Dr. C. W. DANIELS (London) stated that he did not think sufficient importance had been attached to the destructive action of certain dipterous larvæ, particularly those of the sarcophagidæ, which lived in the fæces till nearly mature and destroyed all thin-shelled entozoal eggs. He was not in favour of compulsion by government and thought that more could be done by quiet action on the part of the medical authorities than by active government action which might defeat its own ends.

Dr. F. M. SANDWITH (London) said that he used to be an ardent exponent of the virtues of thymol, but the severe effects produced in some patients had caused him now for some years to prefer β-naphthol or the combination of eucalyptol, chloroform, and castor oil. The important question of prophylaxis could be most easily and most cheaply met by preaching the doctrine of early burial of fæces in dry earth or sand. The ankylostoma eggs could not develop without moisture. Ankylostomiasis as an endemic disease should be treated as regards fæcal disposal as they had learnt to treat epidemics of cholera and enteric fever.

The PRESIDENT of the section said that Dr. Sambon had referred to the sanitary work of the ancient Egyptians; he might also have referred to the better known sanitary laws of Moses. What did the Hebrew do when going to the field in the early morning. He had a "paddle upon his weapon" and making a hole he buried and covered up his deposit therein. Thus were destroyed myriads of ankylostomes. The crux of the whole question, as Sir Patrick Manson had said, was fæcal disposal. He believed in education. If they got at the children in a generation they would have the adults.

Sir PATRICK MANSON, in reply, said that he was glad to gather from what had been said that the section was quite in sympathy with his remarks on the desirability of an effort being made to mitigate the plague of ankylostomiasis in the tropics, and further that the method of attack should be directed towards fæcal sanitation.

Dr. ROBERT T. LEIPER (London) stated that that very morning he had been able to examine, together with Dr. Sandwith, a supply of worms from an anæmic boy sent by Dr. T. L. Bancroft of North Queensland and that he had found both ankylostoma duodenale and necator Americanus. This record of the presence of both known forms in Australia was highly interesting and rounded off their information of the geographical distribution of the "American" form.

Dr. A. PLEHN (Berlin) read a paper on

The Diagnosis of Latent Malaria.

He said that three phases might be distinguished, a first phase or "primary period of latency," lasting from the moment of infection to the first pyrexial attack and characterised by nervousness, dyspepsia, more or less anæmia, and the presence of basophilic granules in the erythrocytes; a second phase made up of "intermediate periods of latency" intervening between the single paroxysms and characterised by the presence of parasites, particles of pigment in the leucocytes, especially the large mononuclears, basophilic granules in the erythrocytes, and relative increase of the large mononuclears; and finally a third phase, or "final period of latency," following the last recurrence of fever and not usually lasting over six months. He pointed out that the presence of urobilinuria might indicate the presence of latent malaria when all other signs were wanting. It was not a specific sign like the presence of gametes in the blood; it was merely a symptom of liver disturbance and might not be present in every case of malaria, but its presence after malarial fever and in the absence of any other cause which might explain the liver affection certainly proved that the malarial infection was not entirely spent.

Dr. E. MARCHOUX (Paris) read a paper on

Dysenteric Amœbæ and Liver Abscess.

Sir PATRICK MANSON said that it was a matter of gratification to the Section of Tropical Diseases that men of the high standing of Dr. Plehn and Dr. Marchoux thought it worth their while to be present there and to take part in their work. Both of them had served a long apprenticeship in tropical pathology and had attained positions of special distinction in that department of medicine. The importance of recognising latent malaria was especially great in regard to Great Britain and her tropical possessions. Any method that would enable them to recognise when a man was the subject of latent malaria or when he was free from infection would be a welcome addition to practical medicine. The presence of basophilic granules in the erythrocytes was an unreliable test, for they occurred in many other infections, notably trypanosomiasis. With regard to the administration of quinine, those who had been in the habit of taking it as a prophylactic in tropical countries should continue its use for at least three months after their return to England and intermittingly for a further period of one to two years. He had many times seen the disregard of this practice culminate in attacks of blackwater fever, sometimes fatal.

Dr. MALCOLM WATSON (Federated Malay States) read a few remarks on Rare Nervous Symptoms seen in Malarial Patients.

Dr. SAMBON said that blackwater fever had been mentioned both by Dr. Plehn and Sir Patrick Manson in conjunction with malaria, and he seized the opportunity again to state most emphatically that blackwater fever was a disease entirely distinct from any of the known forms of malaria. Many years had passed since he first pointed out that blackwater fever was a specific disease more closely allied to the babesia infections of the lower animals and to yellow fever than to malaria. Now he was more than ever convinced of the correctness of his hypothesis, and information which he had been able to gather tended to show that the disease might be conveyed by the agency of ticks.

FRIDAY, JULY 31ST.

Dr. DANIELS opened a discussion on

Lymphatic Diseases in the Tropics.

He said that in practically all tropical diseases some implication of the lymphatic system did or might occur, whether the diseases were due to bacteria, protozoa, or metazoan parasites. In many the lymphatic condition was only of diagnostic value, as it led to little or no direct ill effect. In many of the protozoal diseases enlargement of the glands might be met with. In trypanosomiasis the superficial glands, especially those of the neck, were early involved and were of great diagnostic value: not only could the enlarged glands be readily felt but trypanosomes were more readily found on gland puncture than in the peripheral blood. Cutaneous breaches of continuity from biting arthropoda, ticks, flies, mosquitoes, and the like, and in some places from leeches, were so frequent that naturally lymphangitis and adenitis were more common than in England. It was therefore of interest to notice that such

frequent recurring attacks of lymphangitis were not ordinarily attended by any general lymphatic obstruction. The same might be said of the more chronic ulcerations, with the exception of that due to the granuloma of the pudenda. In the latter disease the glands were not obviously enlarged, no secondary deposits took place, and yet chronic lymphatic obstruction occurred giving rise to swelling of the penis, scrotum, or vulva, resembling ordinary tropical elephantiasis though rarely attaining any great size. With regard to lymphatic bacterial diseases the plague bubo was the one most definitely associated with the tropics. Closely resembling in clinical aspects the rare ambulant cases of bubonic plague were the so-called climatic buboes. In those, also, there was no evidence of lymphangitis, but the glands were enlarged and tender with some febrile disturbance, and in the few cases which he had seen there had been definite suppuration. No plague bacilli were found. The lymphatic diseases more especially associated with tropical conditions were those due to animal parasites. In many of them the eggs were deposited, amongst other places, in the glands, and might, as in schistosoma Japonicum, be very numerous. In such cases the glands were enlarged and fibrotic, but there again no obstructive symptoms occurred. In most tropical countries elephantiasis was common and other evidences of lymphatic obstruction, such as chyluria, were also fairly common. Much speculation as to the causation of that condition had taken place. Lymphatic obstruction was not confined to the tropics; rare cases occurred in England and were indistinguishable from tropical elephantiasis. Personally he had seen two cases. How was it that lymphatic obstruction sufficient to cause chronic œdema, a rare disease in England, in the tropics might affect 5, 10, or 15 per cent. of the population? They knew that elephantiasis might occur from several causes, but its frequency in the tropics claimed a special cause. The discovery of filaria Bancrofti in the lymphatics naturally suggested a plausible hypothesis to account for this difference in frequency. Filariæ were common in the tropics and unknown in temperate climates, as elephantiasis was or nearly so. The connexion between filariasis and elephantiasis was strongly indicated by identity of geographical, topographical, racial and sex distribution, and was further supported by an exactly similar distribution of known intermediate hosts. Thornhill in Ceylon had shown that in natives of Colombo filariasis and elephantiasis were rare compared with certain places a few miles out. Low in the West Indies had proved that a definite ratio held good. In British Central Africa the relationship was very definite; in large tracts of the country there were no elephantiasis and no filariasis. On the Shiré highlands both filariasis and elephantiasis were found only in immigrants. On the lower Shiré river filariasis was common and elephantiasis occurred. Higher up the river neither was found. At the south end of Lake Nyassa he had found no elephantiasis, only one person with filaria and scanty mosquitoes capable of transmitting the infection, whilst at the north end he had observed fairly numerous cases of filaria, several cases of elephantiasis, and an abundance of suitable mosquitoes. Observations of that kind could be multiplied indefinitely. They all confirmed the relationship. The old objection that cases of lymphatic obstruction were the cases in which fewer people harboured filarial embryos than the average population need not detain them. All it meant was that in lymphatic obstruction the embryos were not able to enter the circulation. How did the filaria lead to lymphatic obstruction? In the first place it caused thickening, dilatation, and other changes in the wall of the channel; occasionally it gave rise to hæmorrhage. He had himself seen dilated masses of lymphatics, containing living filariæ, distended with recently coagulated blood. Again, suppuration with abscess formation might occur, either as a result of the death of the worm or in some way connected with its presence, and in the contents of such abscesses remains of the worm had been found. Elephantiasis might occur as a direct sequence of a single attack of acute inflammation or after repeated attacks of a similar nature, or gradually without pain or any erysipelatoid attack. He did not think it necessary that all cases of elephantiasis need be assumed to be produced in the same manner by the filaria. In some it might be hæmorrhage, in other perhaps more common it was merely that the lymphatics distended and altered by the filariæ were more liable to inflammation. The acute lymphangitis was probably due to the introduction of bacteria. Manson believed that the adult worms under certain conditions aborting were the real cause of some cases of obstruction. The aborted embryos instead of being fully outstretched as when normally discharged were still coiled up in their egg capsules which, according to the stage of development, might be round or elliptical. Their shorter diameter being larger than the smallest lymphatic channels the ova were stopped in the glands and blocked up all the anastomosing branches till there was complete obstruction. Manson's hypothesis had not received the full consideration which it required. It seemed to have been condemned tacitly as too complicated and involving a whole series of suppositions. On analysis, however, every point in the hypothesis rested on actual observations. It was more than plausible; it was a logical sequence that must almost necessarily follow and gave a complete explanation of the phenomena observed.

Dr. W. T. PROUT (Liverpool) said that in Europeans a bubo which was called "malarial" or "climatic" was occasionally found. As to the former he had seen no evidence; as to the latter, there was undoubtedly a form of suppurative lymphadenitis for which there appeared to be no appreciable cause. The name given to this disease was only an expression of ignorance. He contended that facts of geographical distribution were opposed to the theory of relationship between elephantiasis and filariasis. In his opinion elephantiasis was a streptococcal disease.

Sir PATRICK MANSON was glad that Dr. Daniels had given an accurate outline of his views, which were generally misunderstood. He did not say that the hypothesis had been proved; he recognised the propriety of an attitude of doubt towards it, but not of denial. To his way of thinking it was a most probable explanation of the facts.

Dr. SAMBON said that Dr. Daniels had very ably shown that there was much evidence in favour of a relationship between tropical elephantiasis and filariasis. In Europe cases indistinguishable from tropical elephantiasis were occasionally met with; they were looked upon by some as disproving any connexion between filariasis and elephantiasis in tropical countries. He was not going to discuss the various causes which might bring about lymphatic obstruction in Europe, but he wished to point out that a filarial predisposing cause was by no means excluded in European cases of elephantiasis. Filaria Bancrofti had a very wide distribution and was certainly found on the African and Asiatic coasts of the Mediterranean. Possibly it occurred also on the European side. At any rate its occasional appearance there was more than probable; indeed, a well-authenticated case had been described in 1894 by Dr. M. Font y Torné in a Spaniard from Canet di Mar (Barcelona) who had never left his country. That man suffered from chyluria and enlargement of the scrotum. His blood contained filaria larvæ. There was no reason why filaria Bancrofti should not prosper in certain parts of Europe. They knew that innumerable species of filariæ lived in the mammals, birds, and reptiles of Europe; some also in man, as, for instance, filaria labialis, filaria conjunctivæ, and other ill-determined species. All these filariæ were fostered and transmitted by arthropod intermediary hosts, which might be flies, mosquitoes, or ticks, according to the species. Filaria immitis, the "cruel filaria" of dogs, had a very wide distribution in tropical and sub-tropical countries, but it was found also in Northern Europe (France, Germany, Denmark, and England). Like filaria Bancrofti it was propagated by mosquitoes.

Dr. J. L. MAXWELL (Formosa) pointed out that the island of Formosa was in practically the same latitude as Amoy on the mainland; the inhabitants were for the most part Chinese immigrants from the Amoy region; the customs, habits, and diseases were with one exception exactly the same, that exception being the presence of filariasis and elephantiasis as a very common disease in the Amoy region, and the almost complete absence in Formosa of both diseases.

Captain J. W. D. MEGAW, I.M.S., stated the facts which he had observed in two districts in Bengal. In Puri, where elephantiasis was common, in 100 prisoners whose blood was taken at night and examined filarial embryos were found in 15. (Three of the prisoners suffered from elephantiasis; in none of these were filarial embryos found.) In Dinajpur, where elephantiasis was rare, in 50 prisoners taken at random

the blood taken at night showed no filarial embryos. (None of the prisoners in this jail [300 in number] suffered from elephantiasis.)

Professor S. A. POWELL (Bombay) said that in many Indian birds—owls, kites, &c.—filariæ were common in the lymphatics and subcutaneous tissues like filaria Bancrofti in man, but they did not find any elephantiasis so far as he was aware. He might add a few figures bearing on the relative incidence of filariasis and elephantiasis. In Cachar, where elephantiasis was rare except when imported, of 256 indigenous persons whose blood he had examined only one showed filariæ. In Bombay, where elephantiasis was not uncommon, of 363 night bloods examined 18, about 5 per cent., showed filariæ. On the other hand, the families of seven cases of elephantiasis, 43 persons, showed no case of filariasis. That filariæ produced inflammation was undoubted. The phenomena of inflammation had been often studied in the cornea of the rabbit. In the swampy districts of India nature often gave them a beautiful demonstration in the case of filaria in the eye of the horse. He had often watched the course of the disease. A white worm about one and a half inches long was suddenly seen in the anterior chamber of the horse's eye, darting about like a miniature eel in an aquarium; usually the aqueous humor and cornea remained quite clear for about 48 hours, then both became steamy, iritis set in, and in four days' time the cornea was dead white and opaque unless the worm had been removed.

Professor A. CASTELLANI (Ceylon) described a palliative treatment of elephantiasis by means of thiosinamin or fibrolysin injections and methodical bandaging, followed by removal of portions of the redundant skin when most of the fibrous tissue had been absorbed.

The PRESIDENT of the section disputed Manson's theory of elephantiasis. The anatomical arrangement of the lymphatics—as to distribution and valvular mechanism—prevented the ova from passing from one side of the body to the other and the theory demanded the presence of an aborting female in many and various parts to account for the clinical fact that the disease in the scrotum was usually symmetrical. After complete removal of a scrotal tumour there was no return of the trouble, although the so-called "obstruction" remained. But a recurrence would surely follow if the least amount of unhealthy tissue remained in penis or perineum. This showed that the disease was in the parts removed and not in those that were left. He spoke at length of treatment.

Dr. NATTAN-LARRIER described some interesting cases of sleeping sickness with nervous and mental symptoms.

Dr. DANIELS then replied. With regard to the symmetrical condition of the scrotal affection he said that that was common to all conditions where the loose cellular subcutaneous tissues of the scrotum were involved. The non-infection of other members of families he had observed in British Guiana with regard to filariasis. Frequently one member only of a family was infected. A person with elephantiasis having no embryos in his peripheral blood was not so likely to infect other members of the family as a person with filariæ and without lymphatic obstruction.

Mrs. BONTÉ SHELDON ELGOOD (Cairo) read a paper on

Bilharziosis among Women and Girls in Egypt.

It showed that the disease was common in young girls, even in those who did not bathe and who used filtered water only. Town children were frequently affected. Bilharziosis was rare in adult women who might, however, have suffered from it in youth. European women and girls were not known to suffer from it, though in the towns they drank and washed in water from the same source as natives used. Water, however, was not stored in European households. Infection was probably not due mainly to bathing, as had been suggested. It was possibly due to faulty storage of drinking water or to the eating of raw vegetables and fruit washed in dirty canals or rivers.

Dr. M. ARMAND RUFFER (Ramleh, Egypt) said that he was of opinion that women in early life were as much infected as were men. Infection might be due to ablutions and was possibly rectal.

Dr. SANDWITH said that Dr. Ruffer's suggestion would hardly explain the prevalence of bilharziosis in the English soldiers in South Africa.

Sir PATRICK MANSON said that Mrs. Elgood had made a most important contribution towards the solution of the problem of the etiology of bilharziosis which for many years had been languishing for want of new facts. He disputed Dr. Ruffer's suggestion of infection per anum.

Dr. SAMBON then moved a vote of thanks to the President for the admirable manner in which he had conducted the business of the section.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 4th, 1830.

REMARKABLE CASE OF LONGEVITY.

AT the meeting of the Medico-physical Society of Florence, on the 13th of December, Dr. Buzzi related the case of a female of his acquaintance, who at that time was 94 years of age, and in the history of whose life there were some rather curious circumstances. Her family had been remarkable for longevity; her father died in his 106th year, her grandfather, by her father's side, in his 109th year, and her mother's father in his 89th year; the latter had, even at his old age, been remarkable for his bodily strength. The woman herself had been rather a delicate child, she was married in her fifteenth year; in the third month of her marriage she menstruated for the first time, and in the fourth she became pregnant; in five years she had borne three children. At this period her husband died, and she became soon afterwards subject to hysterics, which it is stated were most effectually obviated by violent exertion; she was passionately fond of dancing, hunting, and riding on horseback, and frequently, when heated, threw herself into a river or a cold bath. This mode of life brought on violent headache, which with slight intermissions continued to her 40th year, when it yielded to the abrasion of the hair; it always returned, however, as soon as the hair had grown to about two inches in length. In other respects, she was in perfect health, in very good spirits, and of most extraordinary appetite, in which she also fully indulged; three chickens, or from five to six pounds of roast meat, and twenty oranges or peaches, were just sufficient for her breakfast. In her 45th year, her eldest son (who at the time of the report was 77 years old, and in the full enjoyment of health) received, in battle, a wound in the left breast, and the fright which this accident caused, produced, strangely enough, a hæmorrhage from her left breast; the discharge was not copious, but continued for two years. Her menses had always been rather scanty, and she had frequently been subject to various hæmorrhages. In her 53rd year menstruation ceased, but reappeared eight months afterwards, and *continued regularly to her 94th year*, which is the age she had attained at the time of the report. She is rather of small stature, but of very robust frame, and possesses the full use of all her senses; she sleeps only five hours, gets up at day-break, and takes a walk of several hours; her manner of life is extremely simple, and though her appetite is rather strong, her meals are frugal, especially if compared with what she formerly had been used to. She sleeps an hour after dinner, the rest of the day she is continually engaged, being employed either in domestic affairs or reading; she walks very much, and so quick, that sometimes young people are scarcely able to follow her. Six years ago she met with an accident and broke both arms, but was perfectly cured within four weeks. At present she is in perfect health; at night only she has sometimes slight attacks of dyspnœa and agitation; when they occur, she gets up and opens the window; the fit then generally subsides, if not, she goes out into the open air, and after about half an hour's walk, feels perfectly well again.—*Ann. di Med. Fasc. di Maggio e Giugno*, 1830, page 595.

THE BRITISH ASSOCIATION.—Since the provisional programme of the Chemistry Section of the British Association was announced the following additional papers have been promised: (1) the Liquefaction of Helium, by Professor Dr. Kamerlingh Onnes; (2) Anticipations and Experiments on the Liquefaction of Helium, by Sir James Dewar; and (3) Note on a Volatile Compound of Cobalt with Carbon Monoxide, by Dr. Ludwig Mond and others. These communications are awaited with great interest.

THE LANCET.

LONDON: SATURDAY, SEPT. 5, 1908.

Psycho-Therapeutics.

SUPERSTITION extinguished in one of its manifestations ever tends to recrudesce in some other form. There is a large and seemingly necessary place for it in the life of man, and in what we may call a scientific disguise it occupies the public attention at the present time in a constantly increasing degree. With the growth of a knowledge of hygiene, chiefly derived from the lengthy advertisements of different varieties of nostrums which, with diagrams of the nervous or other systems, ornament our lay press, we are perpetually being confronted by our patients with problems which to us at present insoluble are easy of explanation by those who pretend to a knowledge they do not in fact possess. So it has come about that now, probably to a greater degree than ever before in the history of the world, organised charlatanism reaps its enormous profits. In an interesting Epitome of the Progress of Psychiatry in America which was published in the *Journal of Mental Science* for April, 1908, Dr. WILLIAM MCDONALD, jun., gave a graphic description of the multitude of "prosperous-appearing establishments flaunting in highly polished brazen letters" such trades as those of spiritualism, clairvoyance, astrology, osteopathy, and palmistry, in Boston, U.S.A., a city which is always claimed by its inhabitants as an abode of the intellectuals. Here, too, is the church built to "Mother EDDY, CHRIST, and JOHN the BAPTIST" for a million dollars. But beyond the territories of that which the majority of us would undoubtedly call superstition there lies a sphere of influence over which science can claim some sort of control and which has been developed in Boston in a remarkable way. At the Protestant Episcopal Church of Emmanuel an effort has been made "to weld into friendly alliance the most progressive neurological knowledge of the schools and a primitive New Testament Christianity as scholarship has disclosed it, with a view to the relief of human suffering and the transformation of human character." A group of medical men connected with the church, who have enjoyed a training in neurology and psychiatry that must be of rather an exceptional character, have formed themselves into a clinique, with the result that worshippers at the church have unusual opportunities for obtaining intelligent advice administered out of a rare combination of religious spirit with scientific knowledge and skill. Dr. MCDONALD speaks warmly of the enthusiasm which has been aroused, but the reasons for this are quite easy to see.

"The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun." Without here endeavouring accurately to define suggestion and persuasion, words about which considerable controversy is even now going on, we may explain psycho-therapy as the art whereby we endeavour to treat a patient by altering in some way his mental state, whether we produce that alteration by giving him a so-called placebo or by encouraging him when he is down-hearted or by the more elaborate methods of argumentation. That this is no new thing is well known to anyone who has ever practised medicine, while the practice at Emmanuel Church finds its prototype in hoary antiquity. In Egypt, long since, the sick were laid in the temples of Isis to await the voice of the oracle which should reveal to them the means of cure, while the priests treated them according to the rules laid down in the sacred books. Below the Acropolis at Athens facing out towards the Ægean Sea stood the Temple of Æsculapius and, according to the testimony of votive offerings, marvellous cures were there effected chiefly by psycho-therapeutic measures. The imagination was strongly stimulated and processions to the accompaniment of music, prayers to the god, the sanctity of the surroundings, and, perhaps above all, the personal influence of the priests, contributed to the happy results. To other extraordinary and perhaps less elevating agencies, such as have been used from the earliest times to the present, we can only attribute psycho-therapeutic effects. HIPPOCRATES advocated in magisterial terms the skin of the viper for the cure of rashes. Among the Arabian physicians precious stones administered internally had a great reputation; in the Roman Imperial court treacle was vaunted as a panacea against fevers, infectious disorders, and intoxications, while later in history mica panis has had apparently as much efficacy as many of the synthetic preparations. To what can we attribute the good effects of the complicated and nauseous prescriptions of not so very long ago? Are we to deny that any effects at all were produced? Or are we to conclude that effects were then produced on the human body which can no longer be produced, or do we nowadays neglect many valuable preparations which have signally succeeded in times gone by? The effects produced were what may be called legitimately psycho-therapeutical. The success of charlatanism throughout the ages is surely evidence enough, even without a consideration of the obsolete practices of our profession, to convince the sceptical that psycho-therapeutic measures at least have their place in any system of medicine. How often is the medical man confronted with the well-authenticated story of some cure wrought by a "rheumatic ring," by an "electric belt," or by some prescription picked out from the lumber of the past and proclaimed as a specific for the most startlingly dissimilar disorders. How difficult it is to reason with those having faith in such agencies. The point of view of the medical man is diametrically opposite to that of such a patient, for the medical man has learned the limitations as well as the possibilities of the therapeutic art. To set forth those limitations is often to be found guilty of professional jealousy, and one of the most difficult of our labours is to get into the minds of our patients what we can and what we cannot do.

That certain mental states are accompanied by certain bodily states is a matter of common knowledge. Terror and fear may produce profuse sweating, dryness of the mouth, and an alteration in the amount of the renal and intestinal

secretions. Mental impressions have a notable influence upon menstruation, pregnancy, and lactation in women, while the term melancholia is expressive of a marked mental state correlated with a bodily one as marked. Depressing surroundings and emotions have an undoubted effect upon the nutrition of the body, and, in the predisposed, emotional states, perhaps of no great intensity, produce at times various functional palsies. On the sensory side there is little doubt that if special attention be paid to a viscus abnormal feelings with regard to it can be educated into prominence. If these and many other facts can be adduced to indicate the marked ill-effects which can be produced upon the body by mental states, so also may many be adduced which indicate that these ill-effects can be, and constantly are being, neutralised by causes as psychical in character as those which produced them. Herein lies the value of psycho-therapeutics—it is an organised and rational appeal to the highest psychic centres to assert themselves and to prove their superiority to centres that are lower. The good effects of the method are, as might have been expected, most marked in the functional disorders of the nervous system. Applied patiently and persistently by those capable of differentiating organic from functional disease the method is of the greatest value; applied indiscriminately to organic disease it is doomed to failure except in so far as that all patients, whether suffering from organic or functional disease, are rendered more comfortable by confident and cheery optimism on the part of the medical attendant and less comfortable by a gloomy pessimism. The use of psycho-therapeutics is no new thing, however novel it may appear to be in the circles in which it is becoming a craze, but its systematisation and reasoned application is a matter of the last quarter of a century. To our profession is happily due the scientific use of the method and it is a pity that it should be exploited by certain pseudo sciences the practitioners of which are not instructed enough to understand what happens to their patients. The latter are generally drawn from a neurotic class whose members, even though intelligent and educated, are singularly credulous, although their faith in any one method of healing is little likely to be long-lived.

To CHARCOT and those who delight to call him master, DÉJERINE, BRISSAUD, and others of the French school, is due the honour of having definitely established psycho-therapeutics as a principle of treatment, and the mere mention of their names is a guarantee of the scientific value of the achievement. Anyone who has had the pleasure of seeing M. DÉJERINE's ward in the Salpêtrière and the crowd of patients who are there treated by this method with the aid of its adjuvants isolation and alimentation, must have been struck by the remarkable character of the results. It is not given to all to possess the winning personality of M. DÉJERINE but it is open to many more than now make the attempt to use his methods with considerable hope of success. His late *internes* M. CAMUS and M. PAGNIEZ have not long since published a work "Isolement et Psycho-thérapie" which contains an admirable exposition of the practice at the Salpêtrière and a detailed history of the use of the method in times gone by. We commend this book to our readers.

The Asthenic Constitution.

AFTER many years' study of the various conditions to which the names of floating kidney, gastroptosis, enteroptosis, Glénard's disease, nervous dyspepsia, hyperacidity, and neurasthenia are applied, Professor STILLER found that they frequently occurred in association with one another in the same person and that the individuals suffering from them conformed to a type showing certain anatomical peculiarities, notably a mobile condition of the tenth rib and a more or less characteristic bodily conformation. He therefore integrates these various groups of symptoms into a nosological or clinical unit, to which he applies the name of morbus asthenicus[1] and of which he regards the anatomical features as developmental stigmata. He further regards the condition as of congenital origin and points out that it is not infrequently found in several members of the same family and that it is often transmitted hereditarily. He even goes so far as to say that when in a child he finds an "atonic" habit of body and the costal sign of mobility of the tenth rib he regards these as premonitory of the development in the future of neurasthenia, dyspepsia, and enteroptosis.

It is of some interest to trace the reasoning by which Professor STILLER has arrived at his conclusions as set forth in the chapter in his book devoted to the history of the various conditions found in association with the asthenic constitution which he postulates. He briefly summarises the history of the condition of floating kidney which was known so far back as the sixteenth century but was first established clinically by RAYER in 1841. Next he refers to LEUBE'S epoch-marking studies in connexion with the conditions of nervous or functional dyspepsia in 1878, although he admits that these conditions were recognised by English, French, and American observers before that date. He then refers to BEARD'S well-known observations on the condition to which he applied the name neurasthenia in 1869. Professor STILLER regards GLÉNARD'S observations dating from 1887 on the condition with which his name is now associated as marking a notable advance, because of the recognition of the association of floating kidney with other visceral ptoses. Then coming to his own personal observations, he first noticed in the year 1891 during the examination of patients with enteroptosis that they frequently presented a peculiarity in regard to the tenth ribs the ends of which often caused noticeable projections beneath the abdominal wall instead of being closely applied to the cartilage of the ninth, and further that they were often freely moveable—indeed, they were found to conform more to the type of the eleventh and twelfth, with blunt-ended cartilage instead of a more prolonged one reaching to a fine apex as in the normal. On further investigation he found that this abnormality was usually associated with a characteristic habit of body to which he applied the term of "atonic habit." Briefly stated, this comprises a delicate build of skeleton, a long, narrow, and flat chest, sloping ribs, with broad intercostal spaces and an acute epigastric angle,

[1] Die Asthenische Konstitutionskrankheit (Asthenia Universalis Congenita; Morbus Asthenicus) (The Asthenic Constitutional Disease), von Professor Dr. Berthold Stiller. Stuttgart: Ferdinand Enke. 1907. Pp. 228. Price 8 marks.

spare rather flaccid muscles, scanty subcutaneous tissue, and pale complexion. He found, moreover, that such individuals possess a labile nervous system, with a tendency to irritability, depression, and hyperæsthesic sensibilities. Finding that these peculiarities were associated with the tendency to various ptoses, to neurasthenia, and the various forms of functional dyspepsia, including Reichmann's disease or hyperchlorhydria, he arrived at the generalisation which we have already summarised. Professor STILLER'S views have been accepted by many German authorities, by some *in toto*, but by others with certain reservations. On the other hand, they have been strenuously opposed by other authorities, notably by GLÉNARD. One of the most interesting chapters in the book is that in which Professor STILLER deals with his critics. He has an incisive, caustic style and an admirable critical faculty. GLÉNARD, while admitting that such a condition of the tenth rib exists in cases of enteroptosis, denies that it is of congenital origin and attributes it to the pressure of corsets or belts. MEINERT has investigated the condition of the tenth rib in 120 patients and in 100 cadavers, and states that unless great care is taken it is easy to mistake the eleventh rib for the tenth. Professor STILLER, however, states that the tip of the tenth rib is almost without exception to be found in the nipple line, whereas the eleventh lies in the mid-axillary line. MEINERT further states that the condition of free tenth rib is rare, a criticism which Professor STILLER meets by maintaining that he has overlooked all but the most pronounced forms of the defect. Examination of the condition of the end of the tenth rib in the post-mortem room by MEINERT, TANDLER, and FELDMANN revealed the interesting fact that the end of the tenth rib cartilage is normally bound to the ninth by a loose ligamentous connexion which permits of a certain amount of movement. Professor STILLER therefore assumes that during life in the normal person movement is prevented by the tense condition of this ligamentous union, whereas in the person of asthenic type it is not so; he also lays stress upon a defect in length of the tenth cartilage as well as upon its mobility. He further states that in marked degrees of the condition the ninth rib may be free and in rare cases the twelfth may be missing.

In discussing the relation of the asthenic constitution to the development of disease it is claimed that this type of organisation strongly predisposes towards pulmonary tuberculosis and chlorosis, and to a lesser degree towards gastric ulcer, achylia, and postural albuminuria. Its relation to pulmonary tuberculosis is very strongly urged; indeed, it is maintained that the supposed typical tuberculous appearance is really that of the asthenic constitution and that the value of the dietetic and hygienic methods of the sanatorium treatment is largely the result of their beneficial effect upon the underlying asthenic habit of body. Professor STILLER'S thesis is one of considerable interest and affords material for much thought and for research. It is developed with great skill and is obviously the outcome of prolonged and detailed observation. If it proves on further investigation by other authorities to be correct it may serve to explain many associations which are at present obscure, such as the frequent association of gastro-intestinal disorders with neurasthenia. It may also prove to be useful in regard to prognosis and treatment and in relation to the scheme of education of those in whom the asthenic constitution is recognised in early life.

The Prevention of Tuberculosis (Ireland) Bill.

THE criticisms which some of the provisions of this Bill have evoked have in their turn given rise to a movement intended to aid the promotion of the measure, and at a meeting in Dublin of the Tuberculosis Exhibition Committee of the Women's National Health Association of Ireland, which was attended by delegates from local authorities, some of the points at issue were discussed at length. The outcome of an animated discussion was, as will be seen in the weekly letter from our Irish correspondents, that the principle of notification was approved of by a nearly unanimous vote; and a speech by Sir JOHN BYERS, which we have been able to peruse at length, had in great probability much to do with this result of the debate. Sir JOHN BYERS, in supporting a motion in favour of the Bill, drew attention to the fact that many persons felt that as it stood the measure needed amendment and strengthening, and while he thought that Mr. BIRRELL would be quite willing to adopt any modifications which were feasible, he regarded notification as absolutely necessary for dealing with the disease, pointing to the history of the Notification Act in support of his statement. Although there is no need to question the value of notification, it may perhaps be well to remember that it may not be so great an essential as Sir JOHN BYERS seems to think, seeing that, as the history of Ireland itself demonstrates, relapsing fever and, in large part, typhus fever had well-nigh disappeared from Ireland before notification was in force, a fact which surely points to the conclusion that notification, although important and helpful, is not an absolute essential in the case at least of some diseases—and the past history of tuberculosis lends support to a view that it has certain points of resemblance both to typhus fever and relapsing fever. We are in agreement with Sir JOHN BYERS as to the utility of the notification of pulmonary tuberculosis provided that the knowledge thereby obtained is used for helping the patients rather than, indirectly, to render them marked persons to be avoided by their fellows. But we are not altogether in accord with him as to the desirability, at least in the first instance, of compulsory notification, although we know that he takes a broad view of the matter and discountenances extreme measures, having probably, like so many others who have carefully studied this intricate problem, somewhat modified his original position. As to the forms of tuberculosis which should be notified Sir JOHN BYERS is of opinion that all forms, medical and surgical, should be included, although he would be content for the present if all forms of the pulmonary type were notified, but these he thinks that it should be compulsory to notify. He considers that compulsory notification will lead to the notification of those much desired but frequently elusive cases—the early ones. But we doubt whether the experience of compulsory

notification elsewhere justifies this belief, and it is incumbent upon those who support it to furnish the evidence for the creed.

The experience of Germany is, we think, to the effect that relatively early cases can be secured without compulsory notification in a country where there is a system such as the German Workmen's Insurance, the "invalidity" branch of which has exercised such a happy influence upon tuberculosis in Germany. We are much interested to see that Mr. LLOYD-GEORGE has had his attention drawn to this subject during his recent investigations in Germany, and we hope that by way of furthering the health and social reform of our working classes he will ascertain how far such a system could be grafted on to our friendly societies and other organisms of similar nature. A statesman who would introduce this system into England would thereby erect for himself a monument which would last for all time—these words savour of exaggeration, but we believe them to be accurate. In the meantime, we are inclined to think that Mr. BIRRELL would be well advised to do all in his power to promote voluntary notification, and in instances in which the compulsory measure may seem to be desirable to allow it only under the conditions which obtain in Sheffield and Bolton—i.e., that no person suffering from pulmonary tuberculosis shall be subject to the provisions of the penal clauses applicable to such a disease as small-pox. Sir JOHN BYERS refers to the fall in the death-rate from tuberculosis in New York, where compulsory notification had been in force for several years, and he presumably implies that such fall is due to the notification and the measures taken in consequence of the facts revealed. But we are under the impression that there was an enormous fall in the death-rate of tuberculosis in that city before the introduction of notification, so that it is a difficult matter to determine how far, if at all, such fall has been hastened by the measures taken. In dealing with tuberculosis we are face to face with a vast social problem, and it is only by a thoroughly scientific study of all the facts that we can hope for a sure advance. Ireland is in a condition of general sanitary backwardness, as is shown by the fact that typhus fever is still with her, and, this being so, she cannot easily develop plans of campaign which might be successfully applied in a country where there is an elaborate system of sanitary organisation. But we have every hope that the Prevention of Tuberculosis (Ireland) Bill will, when further considered and amended, form a useful stimulus for a general advance in the sanitation of the country.

Annotations.

"Ne quid nimis."

THE MEDICAL MISSIONARY.

IT did not need the discussions at the Pan-Anglican Congress or at the General Assemblies of the Church of Scotland to indicate the vast field opened up by imperial expansion for the young practitioner of medicine. Co-extensive with every colony or "sphere of influence" under the British flag the medical arm has made its coöperation felt as a powerful auxiliary in the absorption of subject races and in their assimilation to the standards, moral and intellectual, of the central power. If British colonisation is the envy of rival nationalities, it owes it to the fact that solicitude and practical care for the well-being of the populations committed to its charge form an inspiring principle of its government, shown in its provision for the ailing and the injured as well as for the sanitary conditions under which the individual can live and thrive. Year by year the demand for the duly qualified practitioner and the hospital nurse invites into the missionary field an augmenting number of the British youth of both sexes whose professional equipment keeps pace with the growing wants of the communities in which they work and whose remuneration tends to increase in proportion. These communities are being gradually educated up to appreciate the value of the medical man's service, and while gratuitous assistance is freely and fully meted out in the hospitals and itinerant ambulances established for the very poor the payment of a fee for attendance is becoming the rule with those of the native population who can afford it. More than one medical speaker at the Pan-Anglican Congress dwelt on this fact—Mr. H. White, drawing on his experiences in Persia, and Dr. Ernest F. Neve, after years of work in Kashmir, concurring in the opinion that "men did not value what cost them nothing," and that fees were cheerfully paid by those whose means had been enhanced by the improved conditions of life vouchsafed to them. The self-respect thus manifested in backward races is one of the reassuring signs of the success of the civilisation brought to bear upon them and is of special significance in presence of the fact that jealousy and distrust on the part of the native population make one of the chief obstacles which the medical missionary has had to overcome. Again, on the part of the practitioner himself it is of the best augury to find him so alive to the growing responsibilities of his office that he is insisting on the necessity of post-graduate teaching as supplementary to his equipment. This, added to the unique experience which he enjoys, particularly in tropical latitudes, cannot fail to fit him more and more for coöperation with the pioneers of pathological and clinical research whose labours in those regions are steadily minimising the risks to life incurred by the European resident, while bringing the local sanitation up to a standard which must react for good on the natives themselves. A career, in fact, is opening attractively out for the medico-missionary aspirant whose life-work need not be circumscribed by the original scene of his labours but may be transferred to one or other of the Schools of Tropical Medicine of which so auspicious a commencement has been already made, and which, before the century is much older, will have so increased in number as to draw to their chairs the more accomplished and successful of that branch of the profession. Honourable ambition, going hand in hand with philanthropy and nature-study, has thus inspired more than one "pioneer of Empire" who, from Livingstone onwards, has bequeathed a record which cannot but tempt the brave young British soul to find an outlet for his energies in fields so fraught with opportunity, so replete with the prizes that wait upon the service of man.

THE HISTORY OF HYDRASTIS CANADENSIS.

IN an interesting bulletin[1] dealing with hydrastis canadensis or golden seal Miss Alice Henkel and Mr. G. Fred Klugh refer to the early history of the plant which now furnishes one of the most important of the drugs produced in the United States. As in the case of many other native American medicinal plants, the early settlers became acquainted with the properties of golden seal through

[1] Circular No 6, Bureau of Plant Industry, United States Department of Agriculture ,1908, pp. 19.

the American Indians who regarded it as a specific for sore and inflamed eyes. It was a very popular remedy for this affection with the pioneers in Ohio and Kentucky, who also chewed the root for the relief of soreness of the mouth. Burton, in his "Collections for an Essay towards a Materia Medica of the United States" (1804), refers to the use of a spirituous infusion of the root of golden seal as a tonic bitter and of an infusion of the root in cold water as a lotion for inflammation of the eyes. According to Dr. C. S. Raffinesque, in his "Medical Flora" (1828), the Indians employed the juice or infusion "for many external complaints as a topical tonic," and "some Indians employ it as a diuretic, stimulant, and escharotic, using the powder for blistering and the infusion for the dropsy." He further states that "internally it is used as a bitter tonic, in infusion or tincture, in disorders of the stomach, the liver, &c." About the year 1847 a demand was created for golden seal by practitioners of the eclectic school. It then became an article of commerce and the price soon rose from a few cents a pound to upwards of two dollars a pound. The root was made official in the 1860 edition of the United States Pharmacopœia and has remained official to the present day. It did not appear in the British Pharmacopœia until the issue of the Addendum to the 1885 edition. The wide popularity of the drug at the present day is evidenced by the fact that from 200,000 to 300,000 pounds of the dried root are sold annually. Formerly the drug was entirely collected in the woods by drug diggers, but within the past few years their depredations and the more extended cultivation of land in the United States have been the chief factors in inducing cultivators to pay attention to the growing of golden seal. It is satisfactory to learn that the cultivated roots are even richer than the wild roots in hydrastine, the chief active constituent of the plant. About nine-tenths of the supply of golden seal is used in the United States, chiefly in utero-ovarian disorders. Its remedial action in such cases is ascribed to the hydrastine, while berberine, the other important constituent, is valuable simply as a bitter tonic.

THE DECLINING ENGLISH DEATH-RATE.

THE rate of mortality in England and Wales during last year did not exceed 15·0 per 1000 of the estimated population; it was 1·7 below the mean annual rate during the ten years 1897–1906, and was distinctly lower than the rate recorded in any year for which trustworthy statistics exist. The Registrar-General's returns for the first two quarters of 1908 show, moreover, that the death-rate had further declined considerably below the low rate in 1907. In the first quarter of this year the annual death-rate was 1·0 and in the second quarter 0·8 per 1000 below the rates that prevailed in the corresponding quarters of last year. The mean annual rate during the first six months of this year did not exceed 15·8 per 1000, and was 1·3 below the mean rate in the corresponding period of the ten years 1897–1906. It appears from the last quarterly return recently issued that during the three months ending with June last the crude death-rate in the 76 largest English towns did not exceed 13·7 per 1000, against 14·7, 14·8, and 14·9 in the three preceding corresponding quarters. Thus the crude death-rate in these large towns was 1·1 per 1000 below the mean rate in the same towns during the three preceding corresponding quarters and was slightly below the recorded rate in the whole population of England and Wales. After correction, however, for differences in the age and sex constitution of their population the death-rate in these towns during last quarter is raised to 14·6 for true comparison with the rate of 13·7 in the whole of England and Wales; the corrected rate in 142 smaller towns last quarter was equal to 13·5, and in the remainder of England and Wales (excluding the 218 towns) was 13·3 per 1000. The rate of mortality from the principal epidemic diseases in England and Wales last quarter did not exceed 0·94 per 1000, against 1·48, the mean rate in the three preceding corresponding quarters. The death-rates last quarter from measles, scarlet fever, diphtheria, whooping-cough, and fever (principally enteric) were all considerably below the rates from these diseases in the corresponding quarter of last year. Another eminently satisfactory feature in the mortality statistics for last quarter is a marked further decline in the death-rate of infants under one year of age, which did not exceed 97 per 1000 births registered, against 112, 108, and 110 per 1000 respectively in the corresponding quarters of 1905, 1906, and 1907. In the 76 large towns the mean rate of infant mortality was equal to 100 per 1000 births, and ranged from 46 in Hornsey, 52 in Handsworth, and 70 in Tottenham, to 141 in Rhondda, 160 in Hanley, and 167 in Burnley. The excess of the rates of infant mortality in the Lancashire, as compared with the Yorkshire, towns is again very noticeable, and among the smaller Lancashire towns the rates were equal to 147 per 1000 in Colne, 154 in Darwen, and 172 in Ashton-under-Lyne; whereas, on the other hand, the rates did not exceed 73 in York, 75 in Halifax, 78 in Huddersfield, and 92 in Keighley. It is, moreover, satisfactory to note that the proportion of uncertified causes of death in England and Wales continues to decline. During the second quarter of this year the proportion of uncertified causes of death in England and Wales was equal to 1·4 per cent. of the registered deaths, whereas in the ten preceding corresponding quarters the mean percentage was 1·7. Among the 76 large towns the proportion of uncertified causes of death did not exceed 1·0 per cent. Whereas all the causes of death were duly certified in West Ham, Croydon, Walthamstow, Brighton, Derby, and in ten other smaller towns, the proportion of uncertified deaths ranged upwards in the remainder of the 76 towns to 3·8 per cent. in Birmingham, 4·4 in King's Norton, 6·3 in Warrington, and 7·6 in Gateshead. It would be interesting to have an explanation of the excessive proportions of uncertified deaths in these last-mentioned towns. Is it due to the practice of unregistered medical practitioners or to the neglect to provide any medical attendance during the last illness of the deceased? In either case, however, this defect in the Death Register might be obviated by action on the part of the local coroners. It should further be noted that as the result of the action of the metropolitan coroners the causes of all but 11 of the 15,196 deaths registered in London during last quarter were duly certified.

THE DEATH OF PROFESSOR HENRI BECQUEREL.

A BRILLIANT investigator is lost to the scientific world in the person of Professor Henri Becquerel whose death in Brittany was announced last week. The fact that at the time of his death he was president of the Paris Academy of Sciences is proof of the high esteem in which Professor Becquerel was held by his distinguished scientific colleagues in France. Professor Becquerel's researches on phosphorescence paved the way to the discovery of radio-activity and of the existence of radium in pitchblende as a definite entity by Madame Curie. He obtained impressions on photographic plates wrapped in black paper and exposed to the uranium salts, and proved that this did not necessarily depend upon the exposure of these salts to light in the first instance, or upon their power of absorbing rays and afterwards giving them out, but on their power spontaneously to emit radiations. Professor Becquerel showed that these rays,

which are now identified with his name, cannot be reflected, refracted, or polarised, and also that they have the power of penetrating many solid substances, also of ionising gases through which they pass, and of producing fluorescence when they impinge upon screens prepared with such materials as zinc sulphide and barium platinocyanide. These researches were the dawn to the discovery of radium and of the radio-active properties of several bodies. France mourns the loss, at the comparatively early age of 56 years, of such a promising student of nature's laws and phenomena, and England will sincerely share her grief.

UNTOWARD EFFECTS FOLLOWING THE INJECTION OF ANTITOXIN.

ERYTHEMATOUS and urticarial rashes and arthritis are well-known consequences which sometimes follow the injection of antitoxin in diphtheria. They are due not to the antitoxin but to the horse serum in which it is contained. Rarer and more serious consequences—syncope and even sudden death—have been described. Among the fatal cases the best known is that of Professor Langherans's child. In another case reported by Escherich, a fine boy, aged 11 months, was seized with laryngitis, and as a precautionary measure antitoxin was injected. He died a few hours later with sudden failure of the heart. In both these cases no morbid condition was found except an enlarged thymus. As this condition is one of the signs of the lymphatic state in which children are liable to sudden death there is some doubt whether the fatalities should not be ascribed to it rather than to the antitoxin. Antitoxin is almost invariably a perfectly safe remedy, but the possibility of these serious effects should not be overlooked. In the *Journal of the American Medical Association* a remarkable series of cases in which they occurred has been recorded during the present year. In three sudden death took place. The following case is recorded in the issue of Feb. 8th by Dr. E. L. Boone. A well-developed, apparently strong boy came under observation on August 30th, 1907, the second day of an attack of sore-throat. His temperature was 102° F. and the pulse 110, and there was a little membrane in the pharynx. A mild attack of diphtheria was diagnosed and 4000 units of antitoxin, marked "good until Feburary, 1908," were injected below the scapula. The boy was lying on his face and did not even cry out when the needle was inserted. As Dr. Boone turned away and laid down the syringe the boy gave a loud cry of distress and sat up in bed catching at his throat with both hands and giving a choking cough or two. He cried out that his head hurt him and that he could not breathe and continued to clutch at his throat. In a few seconds his face became cyanosed, his pupils dilated, and his eyes were staring. Froth ran from his mouth and there was occasionally a harsh, brassy cough with a peculiar cry. A convulsion occurred and the respiration stopped, but the heart continued to beat for some time. Stimulants were administered hypodermically and artificial respiration was performed until death, which occurred five or six minutes after the injection of the antitoxin. Two cases of collapse are also reported. The following one is recorded in the issue of July 4th by Dr. F. W. Thomas. A boy, aged 15 years, who had always been healthy, had a large mass of diphtheritic membrane in the pharynx; the respirations were rapid, and the pulse was 120. 4000 units of antitoxin were injected. Immediately the countenance became anxious and the face and neck quickly became livid. The boy gasped for breath and cried out that he was being smothered and had a pain at his heart. Froth poured from his mouth and he clutched at his throat. In his eyes was a peculiar death-like stare and the pupils were widely dilated. Soon he went into convulsions, throwing himself from side to side of the bed. Finally, he dropped back unconscious, the pulse disappeared, and death seemed imminent. Heat was applied to the extremities, hot coffee was injected into the rectum, and strychnine, atropine, and nitroglycerine were given internally. After lying in this state for an hour and a half the throat was filling with membrane which threatened to cause suffocation. 3000 units of antitoxin were injected and an hour later 2000. Respiration was weak and rapid and the extremities were cold and blue. Three hours later respiration began to improve and a faint pulse could be detected for the first time for six hours. Consciousness was soon regained but there was much prostration. At 9 A.M. the next day 3000 units of antitoxin were given and the dose was repeated at 1.30 and 5.30 P.M., making in all 18,000 units administered in 22 hours. The improvement in the pulse and respiration became more noticeable, but the membrane did not begin to separate till the fourth day. On the eighth day there were severe muscular and articular pains and the characteristic eruption, and the eyes became bloodshot. Dr. Thomas gave further antitoxin in spite of the untoward effects of the first dose, because he thought the toxæmia of the disease so severe that recovery was impossible without such heroic measures. In an editorial article in the same journal this series of cases is discussed and it is pointed out that the symptoms are similar to those observed in animals infected with an alien serum in what is called the anaphylactic state—i.e., sensitised or rendered susceptible by previous injections of the serum. In sensitised guinea-pigs injections of horse serum are followed in five or ten minutes by dyspnœa, scratching at the mouth, paralysis, convulsions, and death. As the patients had not previously been treated with antitoxin it is suggested that they may have been sensitised by partaking of horseflesh (unwittingly) or even by some other food. We may suggest that the dangerous symptoms may have been due to the injection of some of the serum into a vein—a recognised danger of hypodermic injections. In favour of this are the immediate production of the symptoms and the fact that no symptoms were produced by further injections.

THE RÔLE OF THE PHYSICIAN IN SCHOOLS FOR MENTALLY DEFECTIVE CHILDREN.

AUXILIARY schools for the training of mentally defective or weakly endowed children were first established in Germany but they are now found in most European countries and in the United States. An interesting bulletin, consisting of a translation of a course of lectures on the auxiliary schools of Germany by Dr. B. Maennel, has been issued by the United States Bureau of Education.[1] The bulletin gives the reasons for the establishment of such schools and the conditions under which they are conducted. The physical development of the children as well as the hygienic conditions in the school are inquired into by the school physician. He makes a physical examination every three months, recording the results on a printed form which accompanies the child from class to class until he leaves the school. If a child needs special medical treatment the principal is notified of the fact and the parents are informed by a printed notice that the child should be placed at once under the care of a physician or sent to a polyclinic. The health report calls for particulars as to general constitution; height, weight, and chest measurement; difficulty of speech (if present); the condition of the mouth, nose, teeth, eyes and ears, breast, abdomen, spinal column, and extremities; the presence or otherwise of skin diseases or parasites; and as to signs of disease. Columns are also provided for the general comments of

[1] Bulletin No. 376, Bureau of Education, Washington, D.C., pp. 137.

the physician and for suggestions for treatment in the school. With very few exceptions it has been found that the parents have carried out the suggestions of the physician. The data derived from a physical examination are generally of direct benefit to the pupil by revealing the presence of disease in its early stages and so increasing the chances of a permanent cure. The teacher, too, finds the reports of value, frequently enabling him to trace mental deficiencies to a physical cause. At Halle the school physician has been greatly helped by various specialists who unselfishly placed their knowledge at the disposal of the authorities in stubborn and unusual cases. In many cases the removal of swollen tonsils or adenoids, which contribute to the languor and dulness of a child, may relieve headache, nasal speech, or deafness, as well as unwillingness or inability to follow the school work. Since the auxiliary school physician most frequently meets with nervous diseases, from abnormal excitability to the most serious phases of brain troubles, it is highly necessary for him to be well versed in neurology. At Halle much assistance was rendered by a university professor who consented to treat children affected with paralysis, epilepsy, or St. Vitus's dance. In addition to his many-sided professional assistance the physician is helpful to the auxiliary schools in other ways. He may prevent wrong ways of treating children in the home and give advice when improper food is provided. He may make the pupil's school work easier in various ways, particularly in helping to form vacation colonies in the woods and other suitable places. While the authorities prefer to intrust the work only to a physician who is interested in school hygiene and child-study, it is often very hard to find an experienced physician who is willing to undertake the work. Consequently the auxiliary school physicians in Germany are mostly young men. In addition to a knowledge of school hygiene the auxiliary school physician finds it advantageous to be familiar with psychology and psychiatry. The ideal school physician realises that the highest aim of education is to better the physical as well as the mental condition of the pupils, and he coöperates with the teacher in the attainment of this aim. Thus he may advise the teacher with regard to the length of recitations, the number of intermissions, and the order of subjects in the daily programme. The bulletin contains a number of forms of health reports and is of interest to physicians connected with schools, particularly schools for those who are mentally deficient.

MUSSELS AND TYPHOID FEVER.

AN interesting and instructive preliminary report upon the relationship of mussels to typhoid fever has recently been presented to the health committee by the medical officer of health of Birmingham (Dr. John Robertson). The report has been prepared by the assistant medical officer, Dr. G. F. Buchan, and though it is not conclusive it points to definite and serious sewage contamination of a much-eaten shell-fish, and it suggests that certain standards of purity should be established and that the sale of mussels falling below the standard should be prohibited. During the past four years 74 cases of typhoid fever have been recorded in Birmingham in which the patient had eaten mussels within four weeks of the commencement of the symptoms of the disease. The source of the mussels eaten by the patients could not be traced except in one case, but the number of cases pointed to the necessity for an inquiry into the general bacteriological condition of the mussels delivered to the Birmingham market. Mussels from 15 known sources were examined and evidences of definite sewage contamination were found. The data sought for were the total number of micro-organisms present in one mussel and the number of the following organisms: bacillus coli communis, bacillus enteritidis sporogenes, streptococcus, and bacillus typhosus. Bacillus typhosus is the only one of the four which causes typhoid fever and it was the only one not found in any of the specimens examined, but the other bacilli and the streptococci, which are accepted as criteria of pollution, were present in greater or smaller numbers, indicating a contamination of the sources from which the shell-fish were derived pregnant with danger which may spring into active life at any moment. In the circumstances it is clear that if a bacteriological standard could be fixed to indicate the boundary line between the mussels which might be considered as comparatively safe and those which should be condemned as food a great advance would be made, and the health authorities would be provided with data which would facilitate their attempts to force the owners of mussel beds to take proper precautions. Dr. Buchan suggests the following standards as indicating that the contamination is so great that the shell-fish reaching or passing them should be condemned as unfit for food. As regards the total number of organisms present, 1,000,000,000 per mussel either by gelatin or agar count. As regards special organisms, more than 1000 spores per mussel of bacillus enteritidis sporogenes, more than 10,000 streptococci per mussel, more than 1000 "coli" organisms of 5¾ or 5½ value, and more than 10,000 "coli" organisms of 5 value, the value of the "coli" organisms being estimated by their powers of fermenting glucose and lactose, of producing indol and fluorescence, and their action upon saccharose. If these standards were applied in Birmingham then five of the sources from which the 25 samples were obtained would be condemned.

"PIGEON DIPHTHERIA."

THE results of a collective inquiry into the 1907 epidemic of so-called "diphtheria" in wood pigeons, organised by *British Birds* under the direction of Mr. C. B. Ticehurst, M.R.C.S., L.R.C.P., have recently appeared in the pages of that magazine, and will, no doubt, awaken fresh interest in the disease. Though the epidemic in question was practically restricted to migratory flocks frequenting the beech woods of the Thames valley, still it reached such proportions that one spot is mentioned, on the borders of the three counties Bucks, Berks, and Oxon, where more than 4000 diseased pigeons had to be disposed of. On the other hand, a spot map of England which accompanies the report shows that the disease has a widespread distribution, for sporadic cases are reported from Cumberland, Yorkshire, Norfolk, and Essex—Scotland, Wales, and Ireland, however, appear to be exempt; and none of the evidence collected affords any support to Dr. L. W. Sambon's suggestion[1] of an intimate association between pigeon "diphtheria" and diphtheria in the human subject. The lesions observed in the diseased birds during life and post mortem are fully dealt with, but the chief interest attaches to the bacillus isolated from these lesions, which Mr. Ticehurst has satisfied himself by inoculation experiments on a wild wood pigeon and a blue racer respectively is the causative factor in the disease. This bacillus agrees more closely with the bacillus diphtheriæ columbarum than the one which is so frequently found in these epidemics and which has a closer relationship to the bacillus of hæmorrhagic septicæmia; and it is a significant fact that this particular epidemic investigated by *British Birds* does not appear to have spread to pheasants and partridges or to mammals. In his report Mr. Ticehurst assumes that the mucous membrane of the fauces and hard palate is the site of infection, and suggests that the probable methods by which

[1] THE LANCET, April 18th, 1908, p. 1143.

infective material reaches these situations is by means of "exudation" from the throat of a diseased bird "coughed" out on to the plumage of a neighbouring healthy bird which subsequently takes up the bacilli during the process of preening itself; or by the ingestion of infected food (e.g., an acorn) previously regurgitated from the gullet of an infected bird. Altogether the report is an excellent piece of work, and leads us to hope that if opportunity offers *British Birds* will continue an investigation which has already yielded such interesting results.

THE WORKING OF THE MIDWIVES ACT IN MANCHESTER DURING 1907.

THE report of the Manchester Midwives Supervising Committee to the City Council of the work done by its officials under the Midwives Act, 1902, during the year 1907 contains a great deal of interesting information. In his annual statement the medical officer of health, Dr. J. Niven, calls attention to the good work done by the executive officer, Dr. Margaret Merry Smith, and points out that the work of supervision, excellent as it is, does not and cannot cover the whole ground. As he remarks, the investigation of stillbirths and the inspection of cases in which the midwife has called in medical aid for other conditions than puerperal fever offers a field of useful work which has not yet been cultivated. A letter was addressed by the supervising committee to the Lord President of the Privy Council representing the necessity for requiring that a midwife should at every visit take the temperature of the lying-in woman, and the advisability of the inclusion of a rule to that effect in the revised rules of the Central Midwives Board. No such rule was inserted, possibly because the Board doubted the feasibility of its being properly carried out at the present time, but the following resolution was sent to the various local supervising authorities, calling their attention to the importance of instructing and encouraging midwives practising within their areas in taking and recording regularly the pulse and temperature of the lying-in woman in every case under their care. The report of Dr. Smith notes that the improvement shown in 1906 in all departments of the work has been fully maintained. The addresses and demonstrations provided for the midwives were well attended and a further series of the same kind is now being given. 11,128 women were attended by midwives in Manchester during the year 1907, or more than half the total number of cases of labour. The influence of the midwives in the prevention of infantile mortality, as Dr. Smith points out, must be great and she records with pleasure that a very good response was made by them when a scheme for the voluntary notification of live births was initiated in the city in December, 1906. By this means the health visitor for the district is able to visit the child as soon as possible after the tenth day and to keep him or her under observation. Of the 153 midwives who announced their intention to practise in Manchester during the year 1907 three were struck off the roll. Of these one still appears to attend a large number of lying-in cases, and as she works in a district where there is no health visitor there is little control over her work. 94 cases of puerperal fever were notified and 20 of these ended fatally. The report contains full particulars of the work done in supervising the midwives and several useful tables are given showing the total number of midwives practising and giving particulars as to their qualifications, the birth-rate and the number of cases of puerperal fever, the number of instances in which a midwife called in a medical practitioner, and the reasons for doing so, and the total number of stillbirths. The difficulties which are likely to arise in future years in providing a sufficient number of midwives is called attention to by Dr. Smith who points out that the difficulty lies largely in the fact "that the people themselves prefer to employ the midwife who is easy-going as regards payment and cleanliness, and refuse to employ the more highly-trained and competent woman who insists on the provision of clean garments and requires the recognised fee for her attendance." This aspect of the matter is too often overlooked by those who write on the question of the provision of midwives. Dr. A. Knyvett Gordon's report on the treatment of the cases of puerperal fever admitted into the Monsall Fever Hospital is most interesting. 49 cases in all were admitted, with a total mortality of 12, or 24·4 per cent. The average interval of time which elapsed between the calling in of the medical man by the midwife or the admission of the patient into the hospital was four and a half days. Dr. Gordon considers that the incubation period of puerperal fever is probably 48 hours, and as in 15 of the 28 cases attended by a medical man a longer period than this elapsed before the onset of symptoms he considers that the medical man is possibly not to blame for the infection but that it may well have been due to the nurse. In the cases attended by midwives the average day on which the onset of the symptoms occurred was the fourth, and therefore, according to the author of the report, the bulk of the cases admitted to the hospital were not instances where the infection occurred at the time of delivery. Dr. Gordon believes that this is true of cases of puerperal fever generally. When we consider, however, the considerable limits of time within which the incubation period of nearly all the acute infectious diseases, or, indeed, of practically any disease of this type, may be compassed it seems hardly likely that that of puerperal fever has such a short and definite duration as Dr. Gordon would wish to assign to it, and we doubt whether the deductions founded by him on this assumption will be borne out by future observations. In 27 of the cases a pure cultivation of the streptococcus was found present in the uterus and in five cases it was present with other organisms. In all but four of the cases the uterus was curetted on the admission of the patient to the hospital with a sharp curette followed by the application to the raw surface of undiluted izal fluid. The mortality of these cases was 22 per cent. Dr. Gordon is of opinion that curetting does good in these cases, since in 79 cases treated on general lines without curetting 37 died, or 46 per cent., while the curetted cases have shown a steady mortality of about 24 per cent.—a figure which we are inclined to believe is equal to, if not slightly greater than, the normal mortality of the disease when large numbers of cases are considered. Polyvalent antistreptococcic serum was administered in seven cases in doses of 100 cubic centimetres. Dr. Gordon considers that antistreptococcic serum is only likely to be of value in cases where the general infection is severe and the local lesion slight. Stress is laid upon the great importance of modified open-air treatment, good nursing, and the need for prolonged after-care in these cases. These reports are of great value and interest and show how well this important work is being carried out in Manchester.

TRAUMATIC FOCAL TELANGIECTASIS OF A TENDON.

IN the *Boston Medical and Surgical Journal* of July 16th Dr. A. T. Legg has reported a case of a rare condition—traumatic focal telangiectasis of a tendon. A single woman, aged 33 years, went to hospital with the history of having sprained her ankle five years previously. After this she occasionally felt pain and stiffness in the ankle, especially in the morning, which disappeared after walking. During the last year the pain and stiffness were constant. There were marked tenderness below and behind the external malleolus and slight thickening along the course of the

peroneal tendons. Lipoma of the peroneal tendon sheaths was diagnosed. There were also flatness of the anterior arch of the foot and hammer toe. An incision three inches long was made from below the external malleolus along the course of the peroneal tendons. The tendon of the peroneus longus presented three cauliflower-like growths, each of the size of a small pea, occupying about an inch of the external surface of the tendon. Between these the surface of the tendon was roughened. A section of the tendon including the growths was excised. Extending the opening in the tendon sheath behind the malleolus a growth resembling a fibro-lipoma presented. This extended about two inches along the tendon and was connected with the sheath. It was also excised. The tendon sheath was closed by continuous catgut suture. Convalescence was uneventful except for slight pain. The patient was allowed to walk on the tenth day and felt some pain about the external malleolus and up the calf, which was relieved by massage and hydrotherapy. Microscopic examination showed that the tumours consisted of adipose tissue crossed by broad bands of cellular connective tissue in which ramified large numbers of injected vessels. The surface of the tumours was completely invested by an extremely vascular layer of this tissue. The vessels as a whole were larger than capillaries and in places showed dilatation into cavernous spaces with irregular contour. None of the vessels had a muscular coat, and for the most part the wall consisted only of an endothelial layer. The arteries of the growths were abundant, of large size, and normal. Lipoma with telangiectasis was diagnosed. The growth connected with the tendon sheath was not microscopically examined but appeared to be a fibro-lipoma. Only two similar cases appear to have been reported, both by Professor Pets Leusden. Both occurred on the tendon of the flexor longus pollicis—one in a girl aged four years, the other in a boy aged two years. Pain on snapping the fingers called attention to the condition. The thumbs were flexed at the interphalangeal joint and could not be fully extended. On passive extension a nodule was felt over the tendon of the flexor longus pollicis. The nodules were removed and showed proliferation with branching of the blood-vessels and considerable thickening of the media of some of them. In his own case Dr. Legg does not believe that the growths removed were true lipomata. He thinks that they were due to tearing of the tendon in the injury five years previously, during the healing of which an inflammatory lipoma from metaplasia formed, subsequently degenerating telangiectatically.

THE friends of the late Dr. Edith Pechey-Phipson having expressed a desire to raise some tribute to her memory a committee has been formed to carry out the two following objects: 1. The foundation of a post-graduate scholarship, to be held by a medical woman, who comes from India or who proposes to work in India; post-graduate study to be carried on in any place or any country approved by the trustees. 2. The building and endowment of one or more additional bungalows at the Nasik sanatorium for women and children. Donations should be sent to the honorary treasurer, Sir Montagu Turner, Chartered Bank of India, Hatton-court, Threadneedle-street, London, E.C.

THE medical session at the University of Manchester will be inaugurated by an address delivered on Oct. 1st, at 4.30 P.M., by Sir Thomas Clifford Allbutt, K.C.B., M.A., M.D. Cantab., D.Sc., LL.D., F.R.S., Regius professor of physic, University of Cambridge.

A White Paper was issued on Monday last, August 31st, containing a supplementary circular by the Board of Education offering to local education authorities explanations of questions in connexion with the Education (Administrative Provision) Act, 1907, and with the Code of Regulations for Public Elementary Schools, 1908.

Dr. Ziemann, a German naval surgeon of high rank who also has the title of Professor in the University of Berlin, has been appointed head of the Medical and Sanitary Department in the Cameroons.

Professor Robert Koch has been appointed by the German Government to attend the International Tuberculosis Congress at Washington as its representative.

THERE is general ground for satisfaction in the report for the year 1907 which has just been issued from the Army Medical Department.

POST-GRADUATE STUDY.

POST-GRADUATE study is divided into three main divisions—the general study of professional subjects (including the special study of some branch), the study of state medicine, and the study of tropical medicine. We have already described in the Students' number of THE LANCET, published on August 29th, 1908, the provision made for instructing graduates in the last two divisions, mentioning the procedure necessary to obtain diplomas or certificates for proficiency in them. The following article shows the principal arrangements existing for general post-graduate instruction, and some little repetition has been necessary:—

LONDON.

The London Post-Graduate Association.—The London Post-Graduate Association is now so well known that it is hardly necessary to remind our readers that it is composed of the following hospitals and medical schools (general and special)—viz.: *General Hospitals:* Charing Cross, Guy's, King's College, St. Mary's, St. Thomas's, University College, and Westminster. *Special Hospitals:* The Brompton Hospital for Consumption and Diseases of the Chest, the Hospital for Sick Children (Great Ormond-street), the London School of Tropical Medicine, the National Hospital for the Paralysed and Epileptic (Queen-square), and the Royal London Ophthalmic Hospital, late Moorfields (City-road). One ticket (the charge for which is 10 guineas for a three months' course, or 15 guineas for six months) admits the holder to the clinical instruction in the wards and out-patients' departments, the operations, necropsies, and other hospital practice of all the institutions mentioned above. The holder is also entitled to attend any special post-graduate classes which may be held from time to time at any of the general hospitals named so that he need not be unable to keep himself apace with modern advances. For the purpose of enabling qualified medical men to keep up to date in their work we can heartily recommend the scheme offered by the London Post-Graduate Association, which thus places the best of all the hospital work in London at the disposal of its ticket-holders. The office of the association remains as before at the Examination Hall. Further particulars may be obtained by writing to the Secretary, the London Post-Graduate Association, Examination Hall, Victoria Embankment, London, W.C., or by personal application between the hours of 11.30 A.M. and 1 P.M., and 2 P.M. and 3 P.M. any week-day except Saturday.

Medical Graduates' College and Polyclinic.—This institution affords to medical practitioners special facilities for acquiring technical skill and for advancing their medical and scientific knowledge. The building contains lecture- and consulting-rooms, a pathological and clinical laboratory, a Roentgen-ray room, an ophthalmoscope room, a museum, a library, and reading- and waiting-rooms, &c. Cliniques are given on each working day of the week except Saturday at 4 P.M., and a lecture on medicine, surgery, or their special branches is delivered daily except on Fridays and Saturdays, at 5.15 P.M. Classes are also held in otology, laryngology,

ophthalmology, radiography, anatomy, nervous diseases, microscopy, urinary analysis, gynæcology, practical bacteriology, mental diseases, hygiene and public health, and operative surgery. Extra classes in any subject are formed to suit the convenience of practitioners unable to attend those already provided. Special tutorial classes are held for practitioners reading for the higher examinations. A complimentary ticket available for three successive days will be issued to any practioner upon presentation of his visiting card. A monthly journal, the *Polyclinic*, recording the work done in the college, is issued free to subscribers and members. The annual subscription for medical practitioners of either sex, holding qualifications granted in any British dominion, is 1 guinea. Full information can be obtained from the medical superintendent at the college, 22, Chenies-street, Gower-street, W.C. The autumn session will commence on Monday, Sept. 14th.

The Hospitals of the Seamen's Society.—In connexion with these hospitals there are two post-graduate schools—viz., (*a*) the London School of Tropical Medicine; and (*b*) the London School of Clinical Medicine.

(*a*) *The London School of Tropical Medicine.*—The school buildings, laboratories, museum, library, &c., are within the grounds of the Branch Hospital Royal Victoria and Albert Dock (Station, Connaught-road, Great Eastern Railway). Opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the service or going abroad. In the hospitals of the society are to be found cases of tropical diseases such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, beginning on Oct. 1st, Jan. 15th, and May 1st respectively. The laboratory, museum, library, &c., are open daily and clinical instruction is given daily in the wards of the hospitals. The School Course is recognised by the University of Cambridge for its Diploma of Tropical Medicine and Hygiene. Classes are arranged for advanced Helminthology, Protozoology, and Entomology. The lecturers in the School are: Sir P. Manson, F.R.S., Dr. Andrew Duncan, Dr. L. Westenra Sambon, Dr. J. M. H. Macleod, Professor R. Tanner Hewlett, Mr. James Cantlie, Mr. E. Treacher Collins, Dr. F. M. Sandwith, Mr. K. W. Goadby, and Professor W. J. Simpson. The Director is Dr. C. W. Daniels. Certificates are granted after examination to those who complete a full course. Resident chambers are available for students who must be qualified or in the fifth year of their medical studies. Prize: the Craggs prize of £50 is awarded yearly.

(*b*) *The London School of Clinical Medicine* (for qualified practitioners only).—The lecture rooms, pathological laboratories (two), museum, and operative surgery class-rooms, are in the *Dreadnought* Hospital at Greenwich, and the whole hospital of 250 beds with its Out-patient Departments is open to students from 10 A.M. till 5 P.M. Medical, Surgical, and Special Department In-patient Cliniques are held upon every afternoon except Saturday by the senior members of the staff and operations are performed daily, whilst out-patients in the Medical, Surgical, and Special Departments are demonstrated by the assistant physicians and assistant surgeons daily in the forenoon. Practical classes are arranged each session in the following subjects: The Practice of Medicine; the Practice of Surgery; Diseases of the Eye; Diseases of the Throat, Nose, and Ear; Diseases of the Skin; Diseases of the Nervous System; Operative Surgery; Clinical Pathology, Microscopy, and Bacteriology; Mental Diseases; Radiography; Dental Surgery; the Administration of Anæsthetics: Hygiene and Public Health; Gynæcology; Surgical Diseases of Women; Surgical Diseases of Children; Medical Diseases of Women; Medical Diseases of Children; Applied Anatomy; and Midwifery. Three sessions of three months' duration are held in each year, beginning on Jan. 15th, May 1st, and Oct. 1st. Every variety of disease may be studied in the wards and out-patient rooms of the hospital, at the dispensaries, and at the affiliated hospitals. Male patients chiefly are received as in-patients by the Seamen's Society, but arrangements have been entered into with the Royal Waterloo Hospital for the reception of graduates who desire instruction in diseases of women and children; with the Bethlem Hospital for those who require tuition in mental diseases; and with the General Lying-in Hospital, York-road, for the prosecution of study in midwifery. These hospitals are situated on the south side of the river, are directly linked to the *Dreadnought* by both railway and tramway, and are affiliated to the London School of Clinical Medicine. The certificates of the school are recognised by the Admiralty, the War Office, and the University of London (for the higher degrees). The supply of material affords exceptional facilities for practical instruction in operative surgery and in pathology on the cadaver. The hospital also offers a wide field for the study of venereal diseases and there is a special department with open-air wards for the treatment of tuberculosis. The teaching staff consists of: Sir Dyce Duckworth, Dr. Frederick Taylor, Dr. J. Rose Bradford, F.R.S., Professor R. Tanner Hewlett, Dr. Guthrie Rankin, Sir William H. Bennett, Mr. Albert Carless, Mr. William Turner, Mr. Lawrie H. McGavin, Mr. L. Vernon Cargill, Sir Malcolm Morris, Mr. L. A. Lawrence, Dr. James Mackenzie Davidson, Dr. S. Russell Wells, Dr. T. Lewis, Dr. D. W. Carmalt Jones, Mr. E. Rock Carling, Mr. C. C. Choyce, Mr. Lawrence Jones, Mr. R. Bickerton, Dr. Wilfrid Fox, Mr. G. N. Biggs, Dr. Maynard Horne, Dr. Cecil Hughes, Dr. Vivian B. Orr, and Dr. R. E. Delbruck. The extra-mural lecturers are: Dr. James Taylor, Dr. W. H. B. Stoddart, Professor W. J. R. Simpson, Mr. James Cantlie, Dr. William J. Gow, Dr. Herbert Williamson, Mr. Russell Howard, Mr. Herbert S. Pendlebury, Dr. Alexander Haig, Dr. Robert O. Moon, Dr. Charles O. Hawthorne, Dr. Thomas D. Lister, Dr. William R. Dakin, Dr. Robert Boxall, and Mr. C. C. Choyce, Dean.

The prospectuses, syllabuses, and other particulars of both schools can be obtained on application to the Secretary, Seamen's Hospital, Greenwich, S.E., or from the Deans at the associated Schools.

West London Post-Graduate College, West London Hospital.—The West London Post-Graduate College was started in 1895 and three years later its basis was enlarged by the provision for the post-graduates of lecture-, reading-, and waiting-rooms, &c., while owing to the continued growth of the college these were transferred in 1901 to a building especially constructed for the purpose. Over 1300 post-graduates have been enrolled since its establishment, the yearly entry being now about 200. The hospital, which contains 160 beds, is in the main Hammersmith-road, about three miles from Hyde Park Corner, and very accessible by omnibus, tram, or train. The physicians and surgeons attend daily at 2.30 P.M. Post-graduates accompany the staff and the junior staff on their visits to the wards. Instruction is given in the out-patient department daily at 2.15 P.M. by the assistant physicians and assistant surgeons. The out-patient department has recently been enlarged and there is now ample accommodation for post-graduates to see and to examine the patients in all the special departments of the hospital. Clinical assistants are appointed from among the post-graduates to the Medical and Surgical out-patients and the Special Departments. The fee for a clinical assistantship to non-members is £2 2*s.* for three months, which includes membership of the College on the days on which the clinical assistant attends. Practical classes, limited in number, for instruction in special subjects, as well as in medicine and surgery generally, are held as required. Operations are performed daily at 2.30 P.M. Post-graduates are allowed to stand close to the table and can see the operations perfectly. The surgeons often avail themselves of the assistance of post-graduates at operations. Instruction is given in the administration of anæsthetics by the anæsthetists on the operating days and post-graduates are allowed to administer anæsthetics under their superintendence. Post-mortem examinations are performed at 12 noon, and demonstrations on recent pathological specimens are given on Mondays at 12 noon during each session in the pathological laboratory. Also two demonstrations are given each week on Practical Medicine on Wednesdays and Fridays at 12.15 P.M. Practical lectures and demonstrations are given each afternoon (except Saturdays), at 5 P.M., during the session. Included in this course are lectures by outside specialists on Mental Diseases and on Public Health, and in connexion with the former instruction is also given in certain asylums. The college is licensed for the teaching of operative surgery. The fee is £4 4*s.* each member in a class of four. The practice of the hospital is well adapted to the needs of medical officers of the Royal Navy and officers of the Royal Army Medical Corps and Indian Medical Service who have

obtained leave for further professional study, and the certificate of attendance at the college during such leave is recognised by the Admiralty. The college is recognised by the University of London for hospital practice before the M.D. degree and by the Royal College of Surgeons for the necessary work before the Fellowship examination. The pathological laboratory has just recently been completely reorganised and placed in the hands of the pathologist, Dr. G. C. Low, who attends there during the whole day and gives instruction in Bacteriology and Microscopy and Tropical Medicine. A special class meets on three mornings a week from 11 to 1, and post-graduates joining the class can work in the laboratory at other times under the guidance of the pathologist. A class meets 12 times and commences at the beginning of each month. The fee for this class in bacteriology and microscopy is £3 3*s*. The fee for the hospital practice, including all ordinary demonstrations and lectures, is £1 1*s*. for one week, £2 2*s*. for one month, £5 5*s*. for three months, £8 8*s*. for six months, £12 12*s*. for one year, and is £25 for a life ticket; all fees to be paid in advance. A practitioner who cannot attend the whole course may attend any ten lectures or demonstrations during the session for a fee of £1 1*s*. A vacation class is held each year in August, the fee being £2 2*s*. for the course of one month, including hospital practice, or a ticket for a fortnight's hospital practice, including the lectures, can be obtained for £1 11*s*. 6*d*. The fee for a three months' course of instruction in the administration of anæsthetics, including a special class, is £3 3*s*., or without the class, £2 2*s*. A ticket for any of the above courses will be issued at any date. Arrangements can be made for gentlemen working for higher university examinations to be coached. The Winter Session will commence on Monday, Oct. 7th. A Special Course of six Lectures on the Medical Inspection of School Children has just been established. This course embraces points to be observed in the Medical Inspection of Children and in the Examination of their Teeth, Eyes, Throat, Nose, and Skin. The course will be completed in one week, and the fee is £1 1*s*. All communications should be addressed to the Dean, Mr. L. A. Bidwell, Post-Graduate College, West London Hospital, Hammersmith-road, W.

North-East London Post-Graduate College.—This post-graduate school is established in connexion with the Prince of Wales's General Hospital, Tottenham, N., which is recognised by the University of London as a place of post-graduate study for the M.D. and M.S. degrees and by the Admiralty and the India Office for purposes of study leave. Facilities are there afforded to qualified medical practitioners for taking part in the work of an active general hospital of 125 beds and for attending demonstrations of various branches of medicine, surgery, and gynæcology, with opportunities for clinical instruction in diseases of the eye, ear, throat, nose, skin, in fevers, psychological medicine, the administration of anæsthetics, and dentistry. Cliniques, lectures, and demonstrations are given by members of the teaching staff in the lecture room, in the wards, in the various out-patient departments, and in certain affiliated institutions. Operations are performed on every afternoon of the week except Saturday. Special limited classes are arranged in gynæcology, the surgical diseases of children, including orthopædic surgery, diseases of the throat, nose, and ear, diagnosis of diseases of the chest, diagnosis of diseases of the nervous system, ophthalmoscopy and refraction, analysis of gastric contents, clinical examination of the blood, diseases of the skin, abdominal surgery, radiography, bacteriology, and medical electricity. The fee for a three months' course of study, which may be begun at any time, in any single department, is one guinea. A fee of three guineas admits to the whole practice of the hospital for a similar term (one month two guineas), and a perpetual ticket for the practice of the hospital may for the present be obtained on payment of a fee of five guineas. Medical practitioners who have attended a three months' course in any department are eligible for appointment as clinical assistants in those departments. A certificate, signed by the staff, may be obtained at the end of three months' hospital attendance. A pathological museum and a pathological laboratory are available. A reading- and a writing-room, containing a reference and lending library, is provided, and tea may be obtained. The hospital is connected with the Telephone Exchange (No. 23, Tottenham).

The lecturers are as follows:—In General Medicine: Dr. Percy Kidd, Dr. R. Murray Leslie, Dr. G. P. Chappel, Dr. A. J. Whiting, Dr. A. G. Auld, and Dr. T. R. Whipham. In General Surgery; Mr. John Langton, Mr. Walter Edmunds, Mr. H. W. Carson, and Mr. J. Howell Evans. In Gynæcology and Obstetrics: Dr. Arthur Giles. In Diseases of the Eye: Mr. R. Philip Brooks. In Diseases of the Ear, Throat, and Nose: Mr. H. W. Carson. In Diseases of the Skin: Dr. G. Norman Meachen. In Fevers (at the North-Eastern Fever Hospital, St. Anne's-road): Dr. Frederic Thomson. In Diseases of Children: Dr. G. F. Still. In Diseases of the Chest (at the Mount Vernon Hospital and the Northwood Sanatorium): Dr. J. E. Squire. In Psychological Medicine (at the Colney Hatch Asylum): Dr. S. J. Gilfillan. In Tropical Medicine: Mr. James Cantlie. In Radiography and Medical Electricity: Dr. A. Pirie. In the Administration of Anæsthetics: Mr. A. de Prenderville and Dr. F. H. Wallace. In Pathology and Bacteriology: Dr. G. G. Macdonald. In Clinical Pathology: Dr. Basil Price.

The opening lecture of the winter session, in conjunction with that of the North-East London Clinical Society, will be given at the hospital at 4 P.M. on Oct. 8th by Mr. Jonathan Hutchinson, F.R.S. Further information, with prospectus and syllabus of lectures and demonstrations, may be obtained from the Dean of the School, Dr. A. J. Whiting, 142, Harley-street, London, W.

PROVINCIAL.

Birmingham.—At the University of Birmingham special courses for post-graduates have not yet been instituted, except in the subject of Advanced Bacteriology (January to March) and Clinical Pathology and Bacteriology (April to June), but the various departments of the University are open to graduates who can attend any of the systematic courses on payment of a fee. Graduates may also work in the laboratories under the supervision of the professors for a small fee to cover the incidental expenses. Applications for information should be made to the Dean.

Bristol.—Courses of post-graduate instruction adapted to the requirements of those proceeding to the M.D. degree of the Universities, each lasting about 12 weeks, will be held at the Bristol Royal Infirmary and General Hospital. The course will consist of: (*a*) clinical demonstrations on cases selected from the wards and from out-patients in medicine, obstetrics, dermatology, and laryngology; and (*b*) tutorial classes in medicine, obstetrics, pathology, laryngology, bacteriology, and dermatology. Classes in clinical medicine will be held twice a week—once at the Infirmary and once at the Hospital—by Dr. F. H. Edgeworth at the Infirmary and by Dr. J. Michell Clarke and Dr. J. O. Symes at the Hospital. Classes in obstetrics will be held once a week on alternate weeks at the Infirmary and Hospital by Dr. Walter C. Swayne and Mr. D. C. Rayner respectively. A class in pathology will be taken once a week in the museums of the Infirmary and Hospital on alternate weeks by Professor Walker Hall and Dr. Carey Coombs respectively. Six demonstrations on dermatology will be given by Dr. J. A. Nixon and Dr. W. K. Wills at the Infirmary and Hospital. Six demonstrations on laryngology will be given by Dr. Watson Williams at the Infirmary. A practical course in bacteriology consisting of six demonstrations will be held by Professor Stanley Kent at University College. A tutorial class in medicine will be held on one evening a week by Dr. G. Parker, Dr. Newman Neild, and Dr. J. R. Charles in rotation and a similar class in obstetrics will be taken once a week by Dr. Walter Swayne and Mr. Rayner alternately. The fees are as follows:—For the whole course, £7 7*s*.; for classes in clinical medicine, pathology, laryngology, and bacteriology and tutorial class in medicine, £5 5*s*.; for classes in obstetrics, pathology, and bacteriology, £3 3*s*.; and for clinical medicine and obstetrics only, £3 3*s*. Applications to attend the classes should be made to Dr. Walter Swayne, 56, St. Paul's-road, Clifton, Bristol.

Cambridge.—Long vacation courses are held at Cambridge during the month of July and the first fortnight in August. This year the course included lectures and demonstrations on general and special pathology by Professor G. Sims Woodhead, on bacteriology for medical students by Dr. Louis Cobbett, an advanced course on bacteriology for students of sanitary science by Dr. G. S. Graham Smith, a course in pharmacology by Professor J. B. Bradbury and Dr. W. E. Dixon, and a series of lectures and demonstrations on protozoal diseases by Dr. G. H. F. Nuttall. The pathological and pharmacological laboratories are open to

advanced students and graduates. Applications for information should be made early in the year to Mr. E. E. Stubbing, Pathological Laboratory Museums, Downing-street, Cambridge.

Leeds.—The Anatomical, Physiological, and Pathological Laboratories at the University of Leeds are at the disposal of qualified medical men for research or for routine work at specially arranged fees and though there is no definite post-graduate course at the General Infirmary the work of the large teaching institution is very freely accessible to qualified medical men at reduced fees. For the past three years a course of post-graduate demonstrations has been held by members of the staff of the Leeds Public Dispensary. The course has been very well attended and it is now proposed somewhat to extend the scope of the work by offering short courses of from four to six demonstrations on special subjects and by arranging for a weekly demonstration of cases of an informal character. This arrangement will hold good for the winter, the usual course of demonstrations being held during the summer.

Liverpool.—At the University of Liverpool the department of Bio-chemistry is devoted entirely to post-graduate teaching and research upon chemistry in relationship to biology and medicine. The laboratory is open daily for research, and courses of laboratory instruction in those parts of the subject most closely related to medical work are given for medical practitioners by arrangement with Professor Benjamin Moore. The Thompson-Yates and the Johnston laboratories are open for post-graduate research in pathology and physiology during the winter and summer sessions, under the supervision of Professor Sir Rubert Boyce and Professor C. S. Sherrington. A course of lectures and practical work in the laboratory is given each term in comparative bacteriology and parasitology by Professor H. E. Annett who also conducts a course of lectures and demonstrations in comparative pathology during the summer term. In the department of Tropical Pathology special courses of laboratory instruction in bacteriology, parasitology, morbid histology, pathology, and medical entomology are given in each term, under the direction of Professor Ronald Ross, Dr. J. W. W. Stephens, and Mr. R. Newstead. A course of instruction in operative surgery is given by Mr. Thelwall Thomas on two days in the week during the summer session to candidates for the Fellowship of the Royal College of Surgeons of England and the higher university degrees in surgery. By special arrangement a practical course on the clinical examination of the blood, the staining and identification of pathogenic bacteria, and the bacteriological diagnosis of certain diseases is given twice weekly during the summer term by Dr. E. E. Glynn and Dr. W. B. Warrington. Three courses annually are given in tropical medicine and parasitology in the Liverpool School of Tropical Medicine in the University, and a Diploma in Tropical Medicine is granted. Post-graduate courses on diseases of the eye, skin, throat, and nose are also given during term time by the lecturers in those departments. At the Royal Infirmary special arrangements exist whereby medical practitioners can keep in touch with the most recent methods adopted in hospital practice.

Manchester.—The plan adopted a few years ago at the University of Manchester of having special courses of lectures on medicine and surgery for qualified medical men has since that time been considerably modified. Classes are now held and lectures given on various special subjects, as, e.g., diseases of the heart, diseases of the respiratory organs, of the kidney, and so on, and the same obtains as to surgical matters. These lectures are designed to meet the wants of senior students and practitioners. The Public Health Department, presided over by Professor S. Delépine, is largely attended by medical men, as are also the lectures on bacteriology given in the College course by Dr. E. J. Sidebotham. Facilities are also given for the pursuit of research work in the public health laboratories, and in this department the dates of post-graduate courses in pathology and bacteriology are announced in the laboratory, and in the medical journals. There is no difficulty in Manchester in the way of any practitioner who wants to have his recollections revived or his knowledge enlarged and brought up to the present standard in accomplishing his wish.

Newcastle-upon-Tyne.—At the University of Durham courses of instruction are given in chemical and physical laboratory work and lectures are delivered on comparative pathology and practical bacteriology for the Diploma in Public Health and the Degree of Bachelor in Hygiene.

Sheffield.—At the University of Sheffield post-graduate courses are held annually. The subjects vary from time to time and include medical and surgical anatomy, physiology of digestion and nutrition, pathology of the blood, clinical bacteriology, surgery, ophthalmic surgery, operative surgery, diseases of the nose, and diseases of the ear.

SCOTLAND.

Aberdeen.—Although there is no special provision at Aberdeen for post-graduate study such as exists in London, still there are some facilities for doing work of this nature at the University. There are fully equipped laboratories in anatomy, anthropometry, bacteriology, botany, chemistry, pharmacology, physics, physiology, public health, and zoology. Graduates or others desiring to engage in special study or research may be admitted by the Senatus to prosecute such study or research in any of the laboratories in accordance with certain provisions. Research students are exempted from payment of laboratory fees but are required to matriculate each year, paying the ordinary matriculation fee (£1 1*s.* for winter and summer; 10*s.* 6*d.* for summer). Forms of application for admission as research students may be had from the Secretary of the Senatus. The fees are £3 3*s.* for six hours per week in winter or nine hours per week in summer, 10*s.* 6*d.* and 7*s.* being charged for every extra hour per week in winter and summer respectively. The fee for the Public Health Laboratory for six months is £6 6*s.*, and for the Bacteriological Laboratory for three months is £4 4*s.*, £3 3*s.* and £1 11*s.* 6*d.* being respectively charged for a half course or any less time. At the Royal Lunatic Asylum, accommodating above 700 patients (fees, £2 2*s.* for three months), arrangements are made for extra teaching in the higher departments of medical psychology and cerebral pathology for graduates who desire it or wish to obtain the certificate of the Medico-Psychological Association of Great Britain and Ireland. Clinical work may be done at the following places:—(General Hospital): Aberdeen Royal Infirmary (accommodating 200 patients, perpetual ticket £6, or first year £3 10*s.* and second year £3, thereafter free); Sick Children's Hospital (75 patients; first year £2 2*s.*, then £1 1*s.*); City (Fever) Hospital (100 beds; £1 1*s.* for three months); General Dispensary and Lying-in and Vaccine Institution (10,000 out-patients per annum; perpetual fee, £3 3*s.*); and Ophthalmic Institution (16,000 patients per annum, fee £1 1*s.*). During the summer session (April to June) special classes, each costing £2 2*s.*, are held at the Royal Infirmary, the subjects being diseases of the skin, medical electricity, dental surgery, anæsthetics, ophthalmology, and gynæcology. Lectures on Diseases of the Ear and Throat are given at the dispensary.

Edinburgh.—For the past three years a post-graduate vacation course has been held in Edinburgh during the autumn. The arrangements in connexion with the course are intrusted to a committee, which consists of representatives appointed by the Faculty of Medicine of the University and by the Royal Colleges respectively. The arrangements of the course to be held this autumn are somewhat different from those of preceding years. The course will extend this year from August 31st to Sept. 26th, and will comprise a Special Surgical Course and a Course on General Medicine. The following classes are reserved for those attending the Surgical Course, the entries for which are limited to 25: (1) Operative Surgery on the cadaver (30 hours); (2) Surgical Anatomy, including five demonstrations on x rays applied to surgery (20 hours); and (3) Surgical Pathology, including five demonstrations upon microscopic methods of value in surgical diagnosis and upon the preparations of museum specimens (20 hours). In addition to the abovementioned classes, which are reserved for those who have entered for the Surgical Course from 11 to 1 o'clock each day, there will be surgical clinics in the wards, including eight clinics upon the commoner surgical affections of children, clinics in the out-patient department, and specially arranged ward visits, so that each day there will be from two to two and a half hours of special surgical instruction in the wards. The attendance upon these surgical clinics in the Royal Infirmary and Royal Hospital for Sick Children is open alike to those attending the surgical or the general course. The work undertaken in the various surgical classes has been so arranged that as far as possible the various regions of

surgery will be treated simultaneously. The clinics in the Royal Infirmary will also be arranged so far as possible to correspond. Notices of operations will be posted daily at the entrance to the infirmary. The fee for the surgical course is 10 guineas. The medical course extends over the same period as the surgical—viz., from August 31st to Sept. 26th. It is divisible into two independent fortnights. The fee for either fortnight is 3 guineas, while for the four weeks the composite fee is 5 guineas. In addition to special medical clinics, clinics on diseases of children and medical ward visits, series of clinics will be held upon neurology, dermatology, diseases of the eye and the exanthemata, while series of demonstrations will be given upon medical anatomy, morbid anatomy, tropical diseases, the pathology of the eye, and infant feeding. Those attending the general course may also attend any of the surgical clinics or ward visits in the Royal Infirmary and Royal Hospital for Sick Children which are held between the hours of 11 and 1.30. In addition to the two courses above referred to a number of classes will be in progress admission to which will be open to anyone who has entered for either the surgical or the general course on payment in the case of each class of an additional fee of 1 guinea. These classes are clinical bacteriology, diseases of the blood (this class is specially intended for those who have some previous knowledge of the methods of blood examination), practical gynæcology, diseases of the ear, nose, and throat, ophthalmoscopy, and errors of refraction. These classes, the attendance upon which is limited, are so arranged that they do not clash with each other or with the important classes included under the general course. Each day throughout the course a lecture will be delivered at 5 o'clock upon some subject of general interest. These lectures are open to all those attending either the surgical or general course. Accommodation may be obtained during September at one of the residences of the University Hall. Information regarding other accommodation may be obtained from the secretary. The committee of the University Union has decided to open the building during September for the use of graduates attending the course. Graduates of any university are eligible for temporary membership for one month on payment of a fee of 5*s*. The Union, which adjoins the University buildings, contains a library, reading-rooms, dining hall, smoking-room, billiard-room, &c. Copies of the syllabus of the September course may be obtained from the secretary, the Faculty Office, University New Buildings, Edinburgh.

Glasgow.—At Glasgow the possibilities for post-graduate work are considerable and in almost every department graduates have opportunities for acquiring more special knowledge or carrying on original work. In pathology, courses in "Practical Bacteriology" and "Pathological Histology" for graduates will be commenced in the pathological department of the Western Infirmary on Monday, Oct. 19th. The courses will extend over eight weeks, each class meeting thrice weekly. The fee for either course is £3 3*s*., and for both courses £5 5*s*. In the Pathological Institute there is a limited number of rooms specially fitted up for research work and arrangements can be made for graduates who are desirous of engaging in work of this nature. Those interested in embryology may take out the practical course, or if they desire to do special work may obtain the use of a table in the embryology laboratory with such guidance and help as the lecturer can give. The University also has the right of nomination to a table in the laboratory of the Marine Biological Station at Millport. This station is happily circumstanced as regards the richness and variety of the fauna which can readily be obtained and kept alive in the tank rooms under approximately natural conditions. It thus offers facilities for various kinds of biological study and particularly for physiological and pharmacological work on the marine invertebrates. Further information regarding the station can be got from the honorary secretary, Mr. Geo. Middleton, 83, Bath-street, Glasgow. Post-graduate instruction in public health laboratory work is given in the University laboratory during both winter and summer sessions, and opportunities are offered under prescribed conditions for original research work. As regards physiology and materia medica the new laboratories are now in working order and every facility is afforded to those wishing to engage in original research work. During the winter months classes in physiological chemistry and physiological psychology will be conducted by the University lecturers in these subjects. In the eye infirmary Dr. A. F. Fergus conducts every autumn a course of post-graduate instruction on refraction testing and on squint. The course extends over a period of two months and the meetings are held twice weekly—namely, on Tuesdays and Fridays in the afternoon. At Anderson's College Medical School the Public Health Laboratory course, conducted by Dr. Carstairs Douglas, is open to all qualified medical practitioners (including women), and is recognised for the Diploma in Public Health by the University of Cambridge, the Scottish Conjoint Board, and the Irish Colleges. The laboratory is fully equipped and the complete course in Chemistry, Bacteriology, and Microscopy is carried out. It is supplemented when desired by a three months' course of lectures on Sanitation, Vital Statistics, and Sanitary Law, attendance on which enables candidates to dispense with three months of the outdoor Public Health work. The course will commence on Oct. 15th. As regards Operative Surgery, graduates desirous of taking out a course in this subject can obtain the necessary facilities by arrangement with the Dean of Anderson's College. The new Maternity Hospital, only opened last May, gives exceptional scope for post-graduate work. There are 110 beds and a large out-door department. Two physicians are on duty at a time and there is a daily clinique. The fees for post-graduate work are £3 3*s*. for a month, £6 6*s*. for three months, and £10 10*s*. for six months. There is also a residence in the hospital grounds, for 15 persons, and available both for graduates and students, board and lodging being charged at £1 7*s*. 6*d*. per week. Post-graduate classes are conducted at the Royal Infirmary during the autumn months. The different courses are as follows:—1. Clinical Medicine: (*a*) Dr. G. S. Middleton, at 9.30 A.M., on Mondays, Wednesdays, and Fridays during September, beginning Sept. 2nd; (*b*) Dr. T. K. Monro, at 4.30 P.M., on Thursdays, Sept. 3rd, 10th, 17th, and 24th; (*c*) Dr. J. M. Cowan, at 4 P.M., on Friday, Monday, and Tuesday, Sept. 25th, 28th, and 29th. 2. Clinical Surgery: (*a*) Mr. John Barlow at 4 P.M., on Tuesdays, Sept. 8th, 15th, 22nd, and 29th; (*b*) Mr. J H. Pringle, at 4 P.M., on Tuesdays and Thursdays, Sept. 1st, 3rd, 8th, and 10th; (*c*) Mr. John A. C. Macewen, at 11 A.M., on Tuesdays, Sept. 1st, 15th, and 29th. 3. Hæmatology: Dr. Walter K. Hunter, at 4 P.M., on Wednesdays, Sept. 2nd, 9th, 16th, 23rd, and 30th. 4. Surgical Diseases of the Urinary Organs: Dr. David Newman, at 4.15 P.M., on Tuesdays and Fridays, Sept. 1st, 4th, 8th, 11th, 15th, 18th, and 22nd. 5. Clinical Examination of the Urine: Dr. John Henderson, at 4 P.M., on Tuesdays and Fridays, Sept. 1st, 4th, 8th, 11th, 15th, and 18th. 6. Gynæcology (*a*): Dr. G. Balfour Marshall, at 10 A.M., on Tuesdays and Fridays, Sept. 18th, 22nd, 25th, and 29th. 7. Diseases of the Ear: Dr. J. Kerr Love, at 4 P.M., on Wednesdays, Sept. 2nd, 9th, 16th, 23rd, and 30th, and at 11 A.M., on Thursdays, Sept. 3rd, 10th, 17th, and 24th. 8. Diseases of the Eye: Dr. A. Maitland Ramsay, at 2 P.M., on Mondays, Wednesdays, and Fridays, and at 8 P.M., on Thursdays and Fridays during September. 9. Diseases of the Skin: Dr. Alex. Morton, at 10 A.M., on Wednesdays, Sept. 2nd, 9th, 16th, 23rd, and 30th. 10. Diseases of the Throat and Nose: Dr. Robert Fullerton, at 10 A.M., on Tuesdays and Fridays during September. 11. Electro-therapeutics: Mr. James R. Riddell, at 9.30 A.M., on Tuesdays and Fridays, Sept. 1st, 4th, 8th, 11th, 15th, 18th, 22nd, and 25th. 12. Gynæcological Pathology: Dr. G. Balfour Marshall and Dr. W. D. Macfarlane, at an hour and on dates arranged to suit those attending. The fee for attendance at each of the above classes is £1 1*s*.; for any three of them, £2 2*s*. 13. Gynæcology: Dr. W. D. Macfarlane, at 10 A.M., on Tuesdays, Thursdays, and Saturdays. Two courses—first from Sept. 1st, second from Oct. 1st. Fee for each course, £2 2*s*. 14. Operative Surgery: Mr. Henry Rutherfurd and Mr. James Battersby, at 3 P.M. daily, beginning Sept. 2nd. Fee, £3 3*s*. 15. Bacteriology: Mr. David M'Crorie and others, five days a week for three months, beginning Oct. 6th. Fee, £3 3*s*.

IRELAND.

Belfast.—At Queen's College a course in clinical pathology, consisting chiefly of practical instruction, is given during the summer session, and, should a sufficient number desire to attend, a post-graduate course of practical work in the application of methods of chemical physiology to clinical

investigation is also held. A course in clinical pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in this department for the public health committee of the Belfast corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, and the diagnosis of cases of infectious diseases. Subject to the number of students presenting themselves, arrangements are made for the necessary practical instruction (1) in the chemical laboratories; (2) in the pathological and bacteriological laboratories; and (3) for outdoor sanitary work under the medical officer of health of Belfast. These courses have been approved by the Privy Council in connexion with the degree of M.D. in State Medicine in the University of London. The certificates of these courses are also accepted for the diploma in public health granted by the Royal University of Ireland, the University of Cambridge, and the various licensing bodies.

Dublin.—The post-graduate courses arranged under the auspices of the President and Council of the Royal College of Surgeons in Ireland have hitherto proved a most gratifying success. The June course of the present year attracted a large and enthusiastic class. As our readers who are interested have, of course, learned from the advertisement columns, two annual courses of Post-graduate Study were arranged for—in June and September respectively. And, as the printed announcement states: "The object of these courses is to render available the whole of the clinical material in the city for the post-graduate student, so that he may see as much as possible during the brief time at his disposal." With this very comprehensive object in view the ten general hospitals of the city are included (Richmond, Jervis-street, Adelaide, St. Vincent's, Dr. Steevens', Mater Misericordiæ, Meath, Mercer's, Royal City of Dublin, and Sir Patrick Dun's), and also the various hospitals which are devoted to "specialties." The opportunities and wealth of material afforded by the latter are well shown by a momentary glance at the list of special subjects and the institutions where they are respectively cultivated: Skin, Adelaide Hospital; Eye and Ear, Royal Victoria Eye and Ear Hospital; Throat and Nose, Mater Misericordiæ Hospital, Adelaide Hospital, and Sir Patrick Dun's Hospital; Gynæcology, Rotunda Hospital, Coombe Hospital, and National Maternity Hospital; X Ray and Light Therapeutics, Meath Hospital and Dr. Steevens' Hospital; Pathology and Bacteriology, Richmond, Whitworth, and Hardwicke Hospitals, Mater Misericordiæ Hospital, Meath Hospital, and School of Surgery, Royal College of Surgeons; Diseases of Children, Orthopædic Hospital, St. Joseph's Hospital, and Harcourt-street Hospital; Lunacy, Richmond District Lunatic Asylum; Anæsthetics, Dental Hospital; Cadaver Operations, Professors at School of Surgery, R.C.S.I.; Anatomy, Professor of Anatomy, R.C.S.I.; Sanitary Science, Professor of Hygiene, R.C.S.I. The second course will begin on Monday, Sept. 21st, 1908, and will terminate on Oct. 13th following. Fee for each course, inclusive of all, £5 5*s*.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8458 births and 4905 deaths were registered during the week ending August 22nd. The annual rate of mortality in these towns, which had steadily increased in the five preceding weeks from 11·1 to 15·0 per 1000, further rose to 15·8 in the week under notice. During the first eight weeks of the current quarter the death-rate in these towns, notwithstanding this increase, averaged only 12·8 per 1000, and the mean rate in London did not exceed 11·8. The lowest annual death-rates in these 76 towns during the week under notice were 5·4 in West Hartlepool, 6·7 in Hornsey, 7·3 in Willesden, and 7·9 in Leyton and in Walthamstow; the rates in the other towns ranged upwards, however, to 23·8 in Oldham, 24·1 in Rochdale, 26·8 in Wigan, and 28·2 in Rhondda. In London the death-rate during the week did not exceed 14·2. The 4905 deaths from all causes in the 76 towns showed a further increase of 222 upon the increasing numbers in recent weeks, and included 1340 which were referred to the principal epidemic diseases, against numbers increasing steadily from 299 to 1132 in the seven preceding weeks; of these 1340 deaths from these diseases, 1133 resulted from diarrhœa, 70 from measles, 49 from whooping-cough, 46 from diphtheria, 24 from scarlet fever, and 18 from "fever" (principally enteric), but not one from small-pox. The deaths from these epidemic diseases during the week under notice were equal to an annual rate of 4·3 per 1000, against rates increasing from 1·1 to 3·6 in the five preceding weeks; in London the death-rate from these epidemic diseases did not exceed 3·3 per 1000. No death from any of these epidemic diseases was registered last week in Hornsey, Hastings, Ipswich, or Great Yarmouth, whereas the annual death-rates from these diseases ranged upwards in the other large towns to 9·9 in Wigan and in Burnley, 10·2 in Hull, 10·6 in Middlesbrough, and 17·6 in Rhondda. The deaths attributed to diarrhœa in the 76 towns, which had steadily increased in the ten preceding weeks from 63 to 927, further rose to 1133 in the week under notice, and caused annual death-rates in these towns ranging upwards to 8·7 in Wigan 9·4 in Burnley, 9·6 in Middlesbrough, 10·2 in Hull, and 16·4 in Rhondda. The marked increase in the death-rate recorded in recent weeks has been almost entirely due to diarrhœa, mainly infantile. The 70 fatal cases of measles in these towns last week showed a slight increase, while the 49 of whooping-cough were fewer than in any recent week; measles was proportionally most fatal in Rochdale, Warrington, and Huddersfield, and whooping-cough in Coventry, Burton-on-Trent, and Stockton-on-Tees. The 46 deaths resulting from diphtheria showed a further increase upon recent weekly numbers, and included 25 in London and its suburban districts, five in Manchester and Salford, and two in Liverpool and in Brighton. The fatal cases of scarlet fever were, however, fewer than in recent weeks, but included six in Liverpool and four in Manchester and Salford. The 18 deaths referred to "fever" included two in Liverpool and two in Norwich. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had increased in the five preceding weeks from 2573 to 2808, had further risen to 2844 on August 22nd; the number of new cases of this disease admitted to these hospitals during the week under notice were 392, against 363, 358, and 343 in the three preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 132 and 128 in the two preceding weeks, further declined to 106 in the week under notice, and were three below the average number in the corresponding week of the five years 1903-07. The causes of 34, or 0·7 per cent., of the deaths registered in the 76 towns during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were again duly certified in Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, Leicester, and in 49 other smaller towns in the week under notice, and all but one of the 1306 causes of death in London were certified; five uncertified causes of death were, however, registered in Liverpool and in Sheffield, and four in Birmingham.

In 76 of the largest English towns 8303 births and 4856 deaths were registered during the week ending August 29th. The annual rate of mortality in these towns, which had steadily increased in the six preceding weeks from 11·1 to 15·8 per 1000, showed a slight decline to 15·6 in the week under notice, influenced by the lower temperature and increased rainfall. During the first nine weeks of the current quarter the annual death-rate in these towns averaged only 13·1 per 1000, and the mean rate in London did not exceed 12·1. The lowest annual death-rates in these 76 towns during the week under notice were 4·5 in Reading, 6·0 in Willesden, 6·1 in Wallasey, and 6·7 in Hornsey; the rates in the other towns ranged upwards, however, to 25·7 in Merthyr Tydfil, 26·7 in Middlesbrough, 26·8 in Hanley, 31·1 in Stockport, and 31·3 in Rhondda. In London the death-rate during the week did not exceed 14·4. The 4856 deaths from all causes in the 76 towns showed a decline of 49 from the increasing numbers in recent weeks, and included 1344 which were referred to the principal epidemic diseases, against numbers increasing steadily from 299 to 1340 in the eight preceding weeks; of these 1344 deaths, 1124 resulted from diarrhœa, 64 from whooping-cough, 56

from measles, 42 from scarlet fever, 37 from diphtheria, and 21 from "fever" (principally enteric), but not one from small-pox. The deaths from these epidemic diseases during the week under notice were equal to an annual rate of 4·3 per 1000, against 2·3, 3·6, and 4·3 in the three preceding weeks; in London the death-rate from these epidemic diseases last week did not exceed 3·5. No death from any of these epidemic diseases was registered last week in Northampton, Ipswich, or Great Yarmouth, whereas the annual death-rates therefrom ranged upwards in the other large towns to 10·0 in Hanley, 10·7 in Walsall, 11·3 in Hull, 12·1 in Middlesbrough, and 16·4 in Rhondda. The deaths attributed to diarrhœa in the 76 towns, which had steadily increased in the 11 preceding weeks from 63 to 1133, declined slightly to 1124 in the week under notice, but caused annual death-rates ranging upwards to 10·0 in Hanley, 10·6 in Hull, 11·6 in Middlesbrough, and 15·3 in Rhondda. The 64 fatal cases of whooping-cough showed an increase of 15 upon the number in the previous week, while the 56 of measles showed a decline of 14; whooping-cough was proportionately most fatal in Walsall, Devonport, and Gateshead, and measles in Stockport, Warrington, Bury, and Rochdale. The 37 deaths from diphtheria were fewer by nine than those in the previous week, but included 14 in London and its suburban districts, seven in Birmingham and its suburbs, and three in Manchester and Salford. The 42 fatal cases of scarlet fever showed a marked increase upon recent weekly numbers, including 16 within the metropolitan area, four in Birmingham and Smethwick, seven in Liverpool and Bootle, and three in Manchester. Of the 21 deaths referred to "fever," three occurred in Norwich, in which city 31 deaths have resulted from this cause since the beginning of this year. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had increased in the six preceding weeks from 2573 to 2844, had declined to 2825 on August 29th; the number of new cases of this disease admitted to these hospitals during the week under notice were 377, against 343 and 392 in the two preceding weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 132, 128, and 106 in the three preceding weeks, rose again to 132 in the week under notice, and exceeded by nine the corrected average number in the corresponding week of the five years 1903–07. The causes of 42, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were again duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 47 other smaller towns during the week under notice, while in London all but two of the 1327 causes of death were certified; eight uncertified causes of death were, however, registered in Liverpool, four in Birmingham, three in Sheffield, and two each in Warrington, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 12·8 and 13·4 per 1000 in the two preceding weeks, further rose to 15·2 in the week ending August 22nd. During the first eight weeks of the current quarter the annual death-rate in these eight towns averaged 13·5 per 1000, and exceeded by 0·7 the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 12·6 in Aberdeen and 12·7 in Edinburgh and in Paisley, to 16·5 in Glasgow and 21·1 in Greenock. The 536 deaths in the eight towns showed a further increase of 65 upon the numbers in the two preceding weeks, and included 107 which were referred to the principal epidemic diseases, against 61, 73, and 79 in the three preceding weeks; of these 107 deaths, 63 resulted from diarrhœa, 19 from whooping-cough, 15 from "fever," seven from diphtheria, and three from measles, but not one either from scarlet fever or small-pox. These 107 deaths were equal to an annual rate of 3·0 per 1000, which was 1·3 below the mean rate from the same diseases during the week in the 76 English towns. The deaths attributed to diarrhœa in the eight towns, which had been 30, 47, and 48 in the three preceding weeks, further rose to 63 in the week under notice, and included 46 in Glasgow, seven in Dundee, four in Edinburgh, and two both in Paisley and Leith. The fatal cases of whooping-cough, which had been 15 and 18 in the two previous weeks, further rose last week to 19, including ten in Glasgow, four in Dundee, and three in Edinburgh. The 15 deaths referred to "fever" showed a marked increase upon recent weekly numbers, eight being certified as enteric and seven as cerebro-spinal meningitis; of these 15 deaths 12 were recorded in Glasgow, six certified as enteric and six as cerebro-spinal meningitis. The seven deaths from diphtheria, of which three occurred in Glasgow, exceeded the numbers in recent weeks. Two of the three fatal cases of measles were returned in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 54 and 45 in the two preceding weeks, rose to 48 in the week under notice, but were five below the number returned in these towns in the corresponding week of last year. The causes of 11, or 2·1 per cent., of the deaths registered in the eight towns during the week were not stated or not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 0·7 per cent.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 12·8, 13·4, and 15·2 per 1000 in the three preceding weeks, further rose to 15·4 in the week ending August 29th. During the first nine weeks of the current quarter the annual death-rate in these eight towns averaged 13·7 per 1000 and exceeded by 0·6 the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 9·9 in Leith and 10·4 in Perth to 17·9 in Paisley and 21·7 in Dundee. The 544 deaths in the eight towns showed a further increase of eight upon the numbers returned in the three preceding weeks, and included 96 which were referred to the principal epidemic diseases, against 79 and 107 in the two previous weeks; of these 96 deaths, 60 resulted from diarrhœa, 17 from whooping-cough, ten from "fever," five from diphtheria, three from measles, and one from scarlet fever, but not one from small-pox. These 96 deaths were equal to an annual rate of 2·7 per 1000, which was 1·6 below the usual rate from the same diseases during the week in the 76 English towns. The deaths attributed to diarrhœa in the eight towns, which had increased from 30 to 63 in the four preceding weeks, declined again to 60 in the week under notice, and included 29 in Glasgow, 14 in Edinburgh, seven in Dundee, five in Paisley, three in Aberdeen, and two in Greenock. The 17 fatal cases of whooping-cough were fewer by two than those in the previous week; 11 occurred in Glasgow, three in Dundee, and two in Paisley. The deaths referred to "fever," which had been five and 15 in the two preceding weeks, declined again last week to ten, of which six were certified as cerebro-spinal meningitis and four as enteric; seven of the ten occurred in Glasgow, two in Edinburgh, and one in Dundee. Of the five deaths from diphtheria, two were returned in Glasgow and two in Dundee; and two of the three fatal cases of measles occurred in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had been 45 and 48 in the two preceding weeks, further rose to 75 in the week under notice, and exceeded by 23 the number returned in these towns in the corresponding week of last year. The causes of 22, or 4·0 per cent., of the deaths registered in the eight towns during the week were not stated or not certified; in the 76 English towns during the same week the proportion of uncertified causes of death did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 16·8, 18·5, and 20·9 per 1000 in the three preceding weeks, further rose to 24·1 in the week ending August 22nd. During the first eight weeks of the current quarter the death-rate in Dublin averaged 19·2 per 1000; the mean rate during the same period did not exceed 11·8 in London and 12·3 in Edinburgh. The 182 deaths of Dublin residents during the week under notice showed a further increase of 24 upon the numbers returned in the three preceding weeks, and included 44 which were referred to the principal epidemic diseases,

against numbers increasing steadily from 11 to 43 in the seven preceding weeks. These 44 deaths were equal to an annual rate of 5·8 per 1000; the rate during the week from the same diseases did not exceed 3·3 in London and 1·3 in Edinburgh. Of the 44 deaths from these epidemic diseases in Dublin during the week under notice, 39 resulted from diarrhœa, two from measles, two from diphtheria, and one from "fever," but not one from scarlet fever, whooping-cough, or small-pox. The deaths attributed to diarrhœa, which had steadily increased from three to 37 in the six preceding weeks, further rose to 39 in the week under notice. The 182 deaths from all causes during the week included 55 of infants under one year of age, and 27 of persons aged upwards of 60 years; both these numbers showed a slight decline from those in the previous week. Six inquest cases and five deaths from violence were registered, and 60, or 32·9 per cent., of the deaths registered during the week occurred in public institutions. The causes of three, or 1·6 per cent., of the registered deaths were not certified; in London the causes of all but one of the 1306 deaths were duly certified, as were the causes of all the 85 deaths in Edinburgh.

The annual rate of mortality in Dublin, which had increased in the four preceding weeks from 16·8 to 24·1 per 1000, declined again to 22·5 in the week ending August 29th. During the first nine weeks of the current quarter the death-rate in Dublin averaged 19·6 per 1000; the mean rate during the same period did not exceed 12·1 in London and 12·7 in Edinburgh. The 170 deaths of Dublin residents during the week under notice showed a decline of 12 from the increasing numbers in recent weeks, and included 35 which were referred to the principal epidemic diseases, against numbers increasing steadily from 11 to 44 in the eight preceding weeks. These 35 deaths were equal to an annual rate of 4·6 per 1000; the rate during the week from the same diseases did not exceed 3·5 in London and 2·4 in Edinburgh. Of the 35 deaths from these epidemic diseases in Dublin during the week under notice, 26 resulted from diarrhœa, eight from measles, and one from "fever," but not one from scarlet fever, diphtheria, whooping-cough, or small-pox. The deaths attributed to diarrhœa, which had steadily increased in the seven preceding weeks from three to 39, declined to 26 in the week under notice; the eight fatal cases of measles showed a marked increase upon the numbers returned in recent weeks. The 170 deaths from all causes during the week included 52 of infants under one year of age and 34 of persons aged upwards of 60 years; those of infants were fewer, and of elderly persons more numerous than in the previous week. Four inquest cases and four deaths from violence were registered; and 76, or 44·7 per cent., of the deaths occurred in public institutions. The causes of five, or 2·9 per cent., of the registered deaths were not certified; in London the causes of all but two of the 1327 deaths were duly certified, and in Edinburgh 1·9 per cent. of the causes of death were not certified.

VITAL STATISTICS OF LONDON DURING JULY, 1908.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·5 per 1000 of the population, estimated at 4,795,757 persons in the middle of the year; in the three preceding months the rates were 6·1, 6·2, and 5·6 per 1000 respectively. The lowest rates last month were recorded in the Cities of London and Westminster and the boroughs of Kensington, Hampstead, Holborn, and Greenwich; and the highest rates in Shoreditch, Bethnal Green, Stepney, Bermondsey, and Battersea. Scarlet fever was more prevalent in July than in any of the four preceding months; among the various metropolitan boroughs this disease was proportionally most prevalent in Shoreditch, Bethnal Green, Stepney, Bermondsey, and Battersea. The Metropolitan Asylums Hospitals contained 2693 scarlet fever patients at the end of last month, against 2868, 2707, and 2514 at the end of the three preceding months; the weekly admissions averaged 372, against 319, 342, and 307 in the three preceding months. The prevalence of diphtheria showed a slight increase over that recorded in June; this disease was proportionally most prevalent in Hammersmith, Fulham, Chelsea, Finsbury, Bermondsey, Lewisham, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 872, 804, and 768 at the end of the three preceding months, had further declined to 738 at the end of July; the weekly admissions averaged 100, against 107, 105, and 95 in the three preceding months. Enteric fever also showed a slightly increased prevalence last month; among the several metropolitan boroughs this disease was proportionally most prevalent in the City of Westminster, St. Marylebone, Hampstead, Islington, Finsbury, Shoreditch, and Bethnal Green. The Metropolitan Asylums Hospitals contained 54 enteric fever patients at the end of last month, against 45 and 48 at the end of the two preceding months; the weekly admissions averaged nine in July, against seven and eight in the two preceding months. Erysipelas was proportionally most prevalent in St. Pancras, Holborn, Bethnal Green, Stepney, Southwark, Bermondsey, and Deptford. The 27 cases of puerperal fever notified during the month included four in Fulham, three each in Islington, Hackney, and Wandsworth, and two each in Kensington, Lambeth, and Woolwich. Of the ten cases notified as cerebro-spinal meningitis, three belonged to Lambeth, two to Hackney, and one each to Paddington, Kensington, Stoke Newington, Shoreditch, and Poplar.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ending August 1st the deaths of 4757 persons belonging to London were registered, equal to an annual rate of 10·3 per 1000; in the three preceding months the death-rates were 14·9, 12·2, and 10·4 per 1000 respectively. The rates of mortality in the several boroughs ranged last month from 5·9 in Hampstead, 7·5 in Lewisham, 8·1 in Battersea, 8·2 in Kensington, 8·3 in Woolwich, and 8·4 in Hammersmith and in Greenwich, to 13·0 in the City of London, in Southwark, and in Bermondsey, 13·1 in Stepney, 13·3 in Shoreditch, 13·4 in Bethnal Green, 14·9 in Holborn, and 16·2 in Finsbury. The 4757 deaths from all causes included 443 which were referred to the principal infectious diseases; of these, 114 resulted from measles, 39 from scarlet fever, 42 from diphtheria, 66 from whooping-cough, 11 from enteric fever, and 171 from diarrhœa, but not any from small-pox, from typhus fever, or from ill-defined pyrexia. The lowest death-rates last month from these diseases in the aggregate were recorded in St. Marylebone, Hampstead, Stoke Newington, City of London, Wandsworth, Lewisham, and Woolwich; and the highest rates in Fulham, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar, and Bermondsey. The 114 deaths from measles were 50 below the corrected average number for the corresponding period of the five preceding years; this disease showed the greatest proportional fatality last month in Bethnal Green, Stepney, Poplar, Southwark, Bermondsey, and Lambeth. The 39 fatal cases of scarlet fever were slightly fewer than the corrected average number; this disease was proportionally most fatal in Paddington, Hampstead, Islington, Shoreditch, Bethnal Green, Stepney, Poplar, and Lambeth. The 42 deaths from diphtheria also showed a slight decline from the average; among the various metropolitan boroughs the highest death-rates from this disease last month were recorded in Fulham, Chelsea, St. Marylebone, Islington, Stepney, Bermondsey, Wandsworth, and Camberwell. The 66 fatal cases of whooping-cough were 54 below the corrected average number; the greatest proportional mortality from this disease occurred in St. Pancras, Islington, Finsbury, Bethnal Green, Poplar, and Southwark. The 11 deaths referred to "fever" were less than one-half of the corrected average number in the corresponding period of the five preceding years; of these 11 deaths, two belonged to the City of Westminster and one each to Paddington, Chelsea, Islington, Finsbury, Shoreditch, Lambeth, Battersea, Wandsworth, and Deptford. The 171 fatal cases of diarrhœa were equal to only one-third of the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Kensington, Fulham, Finsbury, Shoreditch, Bethnal Green, and Poplar. In conclusion, it

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1908.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1908.	NOTIFIED CASES OF INFECTIOUS DISEASE.										DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 living.			
LONDON	4,795,737	—	1942	589	—	100	1	27	210	10	2979	6·5	—	114	39	42	66	—	11	—	171	443	1·0	4757	10·3	82
West Districts.																										
Paddington	150,923	—	73	19	—	3	—	1	6	1	103	7·1	—	3	3	1	—	—	1	—	8	13	0·9	129	8·9	76
Kensington	182,752	—	31	11	—	3	1	2	9	1	58	3·3	—	2	—	1	—	—	—	—	11	14	0·8	144	8·2	101
Hammersmith	124,012	—	41	25	—	2	—	—	4	—	72	6·1	—	—	—	—	2	—	—	—	5	7	0·6	100	8·4	67
Fulham	171,562	—	53	30	—	1	—	4	4	—	92	5·6	—	4	1	4	1	—	—	—	13	23	1·4	147	8·9	91
Chelsea	75,049	—	16	16	—	2	—	1	2	—	37	5·1	—	—	—	2	1	—	1	—	3	7	1·0	79	11·0	76
City of Westminster	170,545	—	38	14	—	6	—	1	9	—	68	4·2	—	—	1	1	3	—	2	—	2	9	0·6	175	10·7	90
North Districts.																										
St. Marylebone	126,867	—	53	11	—	5	—	—	10	—	79	6·5	—	—	—	2	—	—	—	—	2	4	0·3	132	10·9	43
Hampstead	92,654	—	17	2	—	4	—	—	2	—	25	2·8	—	—	2	1	1	—	—	—	—	4	0·5	53	5·9	47
St. Pancras	237,075	—	101	22	—	2	—	—	20	—	145	6·4	—	2	1	—	6	—	—	—	5	14	0·6	235	10·3	80
Islington	349,091	—	145	40	—	10	—	3	9	—	207	6·2	—	2	4	6	8	—	1	—	9	30	0·9	361	10·8	66
Stoke Newington	54,015	—	15	4	—	1	—	—	3	1	24	4·6	—	2	—	—	—	—	—	—	—	2	0·4	47	9·1	102
Hackney	235,253	—	93	17	—	5	—	3	15	2	135	6·0	—	1	2	—	3	—	—	—	8	14	0·6	211	9·4	75
Central Districts.																										
Holborn	54,466	—	13	3	—	1	—	—	6	—	23	4·4	—	—	1	—	1	—	—	—	2	4	0·8	78	14·9	49
Finsbury	96,007	—	41	19	—	6	—	1	—	—	67	7·3	—	—	1	1	4	—	1	—	—	16	1·7	149	16·2	106
City of London	19,252	—	3	2	—	—	—	—	1	—	6	3·3	—	—	—	—	—	—	—	—	1	1	0·5	24	13·0	77
East Districts.																										
Shoreditch	115,227	—	63	17	—	10	—	—	8	1	99	9·0	—	3	2	—	1	—	1	—	13	20	1·8	147	13·3	117
Bethnal Green	131,066	—	82	16	—	4	—	—	16	—	118	9·4	—	8	5	1	4	—	—	—	11	29	2·3	169	13·4	93
Stepney	310,706	—	282	52	—	2	—	1	36	—	373	12·5	—	18	4	4	5	—	—	—	14	45	1··	389	13·1	113
Poplar	171,516	—	77	22	—	1	—	—	13	1	114	6·9	—	14	2	—	5	—	—	—	12	33	2·0	196	11·9	75
South Districts.																										
Southwark	210,442	—	53	22	—	2	—	1	27	—	105	6·2	—	10	1	—	4	—	—	—	10	25	1·2	263	13·0	118
Bermondsey	127,910	—	66	27	—	2	—	—	14	—	109	8·9	—	13	—	2	—	—	—	—	7	22	1·8	160	13·0	90
Lambeth	321,344	—	129	23	—	7	—	2	20	3	184	6·0	—	16	4	3	3	—	—	—	7	34	1·1	299	9·7	77
Battersea	183,873	—	136	18	—	4	—	—	10	—	168	9·5	—	1	1	2	2	—	1	—	3	10	0·6	142	8·1	54
Wandsworth	289,506	—	73	31	—	7	—	3	15	—	129	4·6	—	1	—	4	4	—	1	—	3	13	0·5	246	8·9	76
Camberwell	290,022	—	95	30	—	3	—	1	20	—	149	5·5	—	10	3	4	5	—	—	—	5	27	1·0	258	9·6	78
Deptford	117,539	—	51	19	—	2	—	1	10	—	83	7·4	—	2	—	1	—	—	1	—	4	8	0·7	119	10·6	100
Greenwich	109,110	—	20	12	—	2	—	—	6	—	40	3·8	—	2	—	1	1	—	—	—	3	7	0·7	88	8·4	62
Lewisham	166,627	—	39	29	—	1	—	—	5	—	74	4·9	—	2	—	—	—	—	—	—	—	3	0·2	112	7·5	46
Woolwich...	131,346	—	43	35	—	—	—	2	10	—	90	7·1	—	1	1	1	1	—	—	—	1	5	0·4	105	8·3	67
Port of London	—	—	—	1	—	2	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous laryngitis.

may be stated that the aggregate mortality in London last month from these principal infectious diseases was more than 52 per cent. below the average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 82 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Holborn, Battersea, Greenwich, and Lewisham; and the highest rates in Kensington, Stoke Newington, Finsbury, Shoreditch, Stepney, Southwark, and Deptford.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Staff Surgeon: J. H. Lightfoot, to the *Leda*, on recommissioning.

ROYAL ARMY MEDICAL CORPS.

Major H. C. Thurston, C.M.G., vacates the appointment of Deputy Assistant Director-General, A.M.S., at army headquarters, on the completion of his four years' tenure. Major Edwin T. F. Birrell to be a Deputy Assistant Director-General at headquarters, vice Major H. C. Thurston, C.M.G. (dated August 18th, 1908).

The undermentioned to be Lieutenants on probation (dated August 1st, 1908): David Stirling Buist, Charlie Ryles, Stuart McKenzie Saunders, William Edward Marshall, Gilbert Golding Collet, Edmund Vaine Vaughan, Alexander Morton Pollard, Herbert Gall, Thomas Burton-shaw Nicholls, Julian Babington Jones, William Gordon Wright, James Aitken Clark, Albert Thomas James McCreery, Charles Gregg Sherlock, John Startin, Colin Clarke, Arthur Norman Roy McNeill, Harold Bevis, Andrew Rae Wright, Austin William Byrne, Charles Hyacinth O'Rorke, George Singleton Parkinson, Thomas John Mitchell, Frank Hey Somers-Gardner, Harold Howard Leeson, Samuel Wasson Kyle, Denis Eldred Curwen Pottinger, John William Lane, George Hall Stack, and Donald Hector Colin MacArthur.

The undermentioned lieutenants are seconded, under the provisions of Article 300, Royal Warrant for Pay and Promotion, 1907 (dated August 1st, 1908): Gilbert G. Collet, James A. Clark, and Harold H. Leeson.

Lieutenant Alan C. Vidal, from temporary half-pay, to be Lieutenant (dated August 10th, 1908). Captain J. H. Robinson, from the Royal Army Medical College, has been selected for service at Fermoy. Captain W. Byam has been selected for employment with the Egyptian army.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel C. F. Willis has been appointed to officiate as principal medical officer, Jubbulpore and Jhansi Brigades, vice Colonel D. O'Sullivan, R.A.M.C., appointed to act as principal medical officer, 5th (Mhow) Division.

An Army Department Note has been issued from Army headquarters, Simla, on the subject of specialist pay to military medical officers. It states that specialist pay is an allowance to officers below the rank of lieutenant-colonel for special sanitary, surgical, or medical work done for the State, which it is not in the power of ordinary medical officers to perform with the same efficiency as a specialist. It is not a personal allowance, but is granted only to incumbents of certain specified appointments when actually in a position to perform duties connected therewith. Officers of the Indian Medical Service in civil employment are not eligible for employment as specialists, but officers of the Royal Army Medical Corps in India are eligible for appointment as specialists under qualifications laid down by the Army Council. The eligibility of an officer of the Indian Medical Service for appointment as a specialist is decided by the Director-General of that service, whose conclusion is based either on certificates of a recognised institution or by examination of the candidate.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Shropshire and Staffordshire: Surgeon-Captain Wheelton Hind resigns his commission (dated March 31st, 1908). Surgeon-Lieutenant Colonel and Honorary Surgeon-Colonel John P. Massingham resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated March 27th, 1908).

Rifle.—6th Volunteer Battalion, The Royal Scots (Lothian Regiment): Surgeon-Captain Clement B. Gunn and Surgeon-Lieutenant James H. Horsburgh resign their commissions (dated March 31st, 1908). 3rd Volunteer Battalion, The Queen's (Royal West Surrey Regiment): Surgeon-Lieutenant Edmund F. Rose resigns his commission (dated March 31st, 1908). 2nd Volunteer Battalion, The Royal Scots Fusiliers: Surgeon-Lieutenant Robert Nelson resigns his commission (dated March 31st, 1908). 1st Volunteer Battalion, The Duke of Cornwall's Light Infantry: Surgeon-Captain Francis Chown resigns his commission (dated March 31st, 1908). 1st Volunteer Battalion, The Northamptonshire Regiment: Surgeon-Captain Herbert S. Baker resigns his commission (dated March 31st, 1908). 2nd Volunteer Battalion, The Highland Light Infantry: Surgeon-Major Walter Sandeman resigns his commission, with permission to retain his rank, and to wear the prescribed uniform (dated March 31st, 1908). Surgeon-Lieutenant William S. Paterson resigns his commission (dated March 31st, 1908). 2nd Volunteer Battalion, The Royal Fusiliers (City of London Regiment): Surgeon-Captain Michael G. Foster resigns his commission (dated March 31st, 1908). 4th Volunteer Battalion, The Queen's Own (Royal West Kent Regiment): Surgeon-Captain Arthur T. F. Brown resigns his commision (dated March 31st, 1908).

The following headquarters have been established for the London Territorial medical units: 1st London General Hospital at 9, Tufton-street, Westminster; 2nd London General Hospital at 71, New-street, Kennington Park; and 2nd London Sanitary Company at 51, Calthorpe-street, Gray's-inn-road.

THE ARMY AND NAVY MALE NURSES' COÖPERATION.

The first annual report of the executive committee of the Army and Navy Male Nurses' Coöperation points out that the existence of the coöperation has entirely depended on donations and subscriptions, and the small commission of 10 per cent. deducted from the nurses' fees. The expenses of the offices and advertising cannot be met at present out of the commission of 10 per cent. on the earnings of the 30 nurses now enrolled on the register, though they have been kept constantly in work and the applications for nurses are daily increasing. The committee therefore trust that the generosity of the public will enable them to build up a society which, in time, will be free from all claims on charity. It will be necessary to have at least 150 nurses in constant employment before the office expenses can be met by the percentage taken from their earnings. Advertising is also essential for the success of the scheme. Funds are also required for a residential home, and a small flat has been taken to lodge nurses who are next on the list for attendance on patients. Sir Frederick Treves was elected president of the coöperation and Sir Edward Ward and Inspector-General Maclean, R.N., were elected members of the executive committee. The income of the coöperation from incorporation to June 30th last was £1287 and the expenditure £961.

On August 21st Admiral Berryer of the French Navy visited the Naval Hospital, Gibraltar, and on behalf of his Government presented medals and other tokens of gratitude to the nursing sisters and members of the sick berth staff who attended the French seamen injured in the explosion on board the French cruiser *Jeanne d'Arc* last February. The Governor of Gibraltar and many naval officers were present at the ceremony. Admiral Berryer made a short speech, in reply to which Deputy-Inspector-General Charles James thanked the Admiral for the honour conferred upon the officers and staff of the hospital, and stated that the thanks of His Majesty's service would be conveyed to the French Government through the proper channels.

His Highness the Khedive of Egypt has awarded to Lieutenant-Colonel (local Colonel) George Douglas Hunter, D.S.O., R.A.M.C., attached to the Egyptian army, the Insignia of the Second Class of the Imperial Ottoman Order of the Medjidieh, and to Major George Dansey-Browning, R.A.M.C., the Insignia of the Fourth Class of the Order of the Osmanieh.

Correspondence.

"Audi alteram partem."

THE NEW REGULATIONS FOR THE DEGREE IN MEDICINE OF THE UNIVERSITY OF LONDON.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to an article on the Revised Curriculum for the Degree in Medicine at the University of London which appeared in your columns on August 8th and which contains the following sentence: "The new regulations at the University will not, we understand, come into force for a year." As this sentence taken by itself may lead to some misapprehension, I beg to draw the attention of your readers to the following important announcement made in the Regulations, viz. :—

[a] *Note.*—The Preliminary Scientific Examinations, Parts I. and II., and the Intermediate Examination in Medicine will be held for the last time under Old Regulations in January, 1909.
The First Examination for Medical Degrees and the Second Examination for Medical Degrees, Parts I. and II., under Revised Regulations, will be held for the first time in July, 1909.

Students preparing for the medical examinations to be held in July, 1909, should therefore acquaint themselves without delay with the new curriculum.

I beg also to draw your attention to the fact that in order not to inflict hardship by bringing into force without due notice the important change affecting the length of the medical course on which you comment, the Senate have provided that certain exemptions shall be granted to students who have passed the Preliminary Scientific Examination, Part I., or the First Examination for Medical Degrees, in or before July, 1910. (See Regulations for Internal Students, Appendix, p. v., and Regulations for External Students, Appendix, p. iv.)—I am, Sir, your obedient servant,

ARTHUR W. RÜCKER, Principal.

University of London, South Kensington, S.W., August 25th, 1908.

ALBINISM IN MAN.

To the Editor of THE LANCET.

SIR,—The monograph on albinism in man for which you allowed us to appeal for material in your columns some four years ago, and in the preparation of which we have since been joined by Mr. C. H. Usher of Aberdeen, is now passing through the press. Through the generous assistance of many medical men in various parts of the world we have obtained pedigrees which, with already published cases, cover nearly 500 albinotic stocks and contain between three and four thousand albinos. We have also nearly a hundred photographs of albinos of various races. We shall, however, be very grateful to any of your readers who can, without much delay, send us additional cases. Whilst all data will be welcomed, there are several countries from which information is especially desired, and we shall be thankful to any foreign medical journals that will kindly copy this request. (*a*) Spain—total absence of information; wanted references to literature and pedigrees of albinos. (*b*) Germany—more material required or references to recently recorded cases, especially in North and North-western Germany. (*c*) European Russia and Asian Siberia—material hitherto very sparse. Is there any recent information about the "Spotted Tartars"? (*d*) China and S.E. Asia—material scanty. (*e*) American Indians—only published cases are known to us; any new material will be most welcome. (*f*) Natives of Australia and New Zealand—not many cases as yet, we should be very glad of more. In all pedigrees as many relatives as possible should be included, in addition to the parents and brethren of the albino; the albinos, perfect or partial, should be described individually. In photographs, especially of natives, a normal individual should be taken side by side with the albino; there should be a strong light and a dark background. Lastly, we shall be glad of any information on the following points:—(*a*) Congenital partial albinism, piebald skin dating from birth and stationary; (*b*) leucoderma that has become stationary; (*c*) leucoderma, whether stationary or progressive, affecting several members of the same family, ascendants, or collaterals; several such cases are known but further instances are much needed; (*d*) loss of eye-pigment or any eye trouble associated with leucoderma; (*e*) association of any form of leucosis with Addison's disease (Levi gives a number of such cases); (*f*) pigmented sarcoma occurring in albinos. Material sent to either of us, as below, will be duly acknowledged under the sender's name in our memoir.

We are, Sir, yours faithfully,

KARL PEARSON
(Biometric Laboratory, University College, London, W.C.).
E. NETTLESHIP
August 22nd, 1908. (Hindhead, Haslemere, Surrey).

THE SALARY OF MEDICAL INSPECTORS OF SCHOOL CHILDREN.

To the Editor of THE LANCET.

SIR,—I shall be obliged if you will grant me the hospitality of your columns in order that the subjoined facts may be made known as widely as possible. The county borough council of this town are about to advertise for applications for the post of medical inspector of elementary school children at the salary of £200 per annum for whole-time services, no provision being made for increase of salary after a period of one or more years. As the town has a population of about 90,000 and has 15,000 children regularly attending school—the admissions and discharges averaging 2000 yearly—the members of the profession here consider the salary offered to be inadequate and incompatible with the performance of the duties in the most efficient manner, and hope that members of the medical profession who might think of applying for the post will consider carefully whether it is in the interests of the medical body as a whole that such small salaries should be accepted.—I am, Sir, yours faithfully,

Wigan, August 27th, 1908. A. E. HODDER.

A COMBINATION OF ABNORMALITIES.

To the Editor of THE LANCET.

SIR,—This report of a post-mortem examination will, I think, be interesting to your readers. I was assisted by Dr. W. A. Milne and Mr. J. B. Conner. The man was found dead on the premises of some large engineering works, and as no one saw him fall or receive any injury, a doubt was raised as to the cause of death. He was working on a stage about two feet from the ground. His companion, who had his back to him, not getting the assistance he expected, turned to see why this was so, and was astonished to see the deceased lying "huddled up" on the ground. He was found to be dead. The relations claimed that the deceased had been killed in the course of his work, and as I could not find externally the cause of death a post-mortem examination was held. The peculiar combination of abnormalities found warrants putting the results on record. Besides having a complete transposition of all his organs the man had marked brain and heart abnormalities.

REPORT OF POST-MORTEM EXAMINATION.

External appearances.—The body is that of a well-nourished adult male. Post-mortem rigidity was well marked and there was extensive post-mortem lividity. There were small abrasions on the right eyelid, right ear, and over the occiput. There was no wound through the skin on any part of the body. No fracture of a bone was found.

Internal appearances.—On opening the chest and abdomen we found that all the organs in both cavities were transposed. The liver, kidneys, spleen, pancreas, stomach, and intestines were healthy. The lungs were also healthy, the left having three lobes and the right two.

Heart.—The heart was lying with the apex to the right side. The pulmonary, aortic, and tricuspid valves were healthy. The mitral valve was malformed. One cusp was large and greatly thickened all along its free or lower border; the other cusp measured only one-quarter of an inch from insertion to free edge and was also rather thick. The left auricle was enlarged and the left ventricle was hypertrophied.

Head.—The skull was of a peculiar shape, being small in the frontal region and very large in the posterior part, not unlike a large pear. On removal of the skull cap no lesion was found on the brain externally. While removing the brain a large quantity of straw-coloured serous fluid poured out to the amount of ten ounces or so. When removed and examined the brain showed marked abnormalities. Both lateral ventricles were greatly enlarged, being 6¾ inches long and 2 to 2¾ inches in the other diameters. The brain substance was very thin in all parts; in no part was it more than one inch thick.

I am, Sir, yours faithfully,

Greenock, N.B. EDW. MACKAY, M.B., C.M. Glasg.

A CONTROVERSY ABOUT TEA.

To the Editor of THE LANCET.

SIR,—Your editorial note in THE LANCET of August 8th, p. 421, stating that the adulteration of China tea referred to by your correspondent is now quite remote history owing to the effect of the Sale of Food and Drugs Act of 1875 providing for examination of tea by the Custom House authorities, has incited me to inquire into your original account of the controversy about tea and exposure of the methods of its adulteration adopted by the manufacturers of tea in China prior to that date. I have referred to your articles on Tea and its Adulteration, published in the year 1851. In THE LANCET, 1851, Vol. II., p. 90, an editorial article mentions that considerable skill and ingenuity are displayed in the adulteration of tea as well as in the manufacture of spurious articles in its imitation. The chief adulteration, it is stated, is the use of leaves other than those of the tea plant, such as willow, poplar, plane, oak, hawthorn, sloe, beech, elder, and elm leaves. In the same volume, on p. 112, as the result of the analyses of 35 samples of imported tea, made by your investigator, 12 were found to be adulterated with black lead and nine were found to be composed of exhausted tea leaves and colouring matter. Of 24 other samples, purchased from dealers, four were found to be adulterated. On p. 136 of the same volume it is mentioned that the colour of "green tea" is very frequently imparted by artificial means, Prussian blue, mineral green, and other dyes being used. Various tables relating to the constituents of spurious tea which had been seized by the Custom House officials are given in this article. On p. 161, a simple means by which to discover whether tea has been artificially coloured or not is set out, and the results of microscopical and chemical analyses made by your commissioner of 36 samples of green China tea show that the *whole* of the samples were adulterated. On p. 210 of the same volume the microscopical and chemical analyses of 20 samples of green tea are given. All were adulterated.

This able report concludes by referring to the adulteration of tea by the Chinese and gives illustrations of the structure of the tea plant, microscopical and botanical, and ends by proposing as a remedy for this fearful adulteration a reduction of tea duty, which would extend the consumption of tea, and in all probability, as you suggested, increase rather than decrease the revenue, and it has so turned out.

There can be no doubt that this exposure, the first ever made, of the adulteration of China tea in those days led directly to the passing of the Food and Drugs Act, which, as you state, has proved to be a measure which has since prevented effectually the sale of adulterated tea in the United Kingdom. It is a curious coincidence that the introduction of Ceylon tea into this country dates from the same year—1875—and that now 33 per cent. of the whole of our tea import comes from Ceylon, and has never been charged in any way with adulteration. The same may be said about Indian tea, of which 58 per cent. of all our tea imports are at present used. Quite the reverse has happened in the case of China tea. At the time of your report, in 1851, and for a much later period, 1866, China supplied 90 per cent. of the tea used in this country. To-day not more than 5 per cent. is used. This is a very curious result of the alleged abolition of adulteration of China tea, and one feels greatly relieved to know from your columns that no filthy processes are now used in the manufacture of China tea.

I am, Sir, yours faithfully,

THEA SINENSIS.

August 31st, 1908.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—On Sept. 1st we posted to each member of the profession our sixty-fifth annual circular. Will you kindly allow us, through your columns, to ask for its early return to us? If by any chance a practitioner has not received the form we shall be glad to send one on application. It is particularly requested that the necessary alterations from Volunteer appointments to the Territorial Force should be accurately stated.

We are, Sir, your obedient servants,

THE EDITORS OF THE MEDICAL DIRECTORY.

7, Great Marlborough-street, London, W.

THE WASHINGTON INTERNATIONAL CONGRESS ON TUBERCULOSIS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE MEDICAL PRESS AND THE ORGANISATION OF INTERNATIONAL CONGRESSES.—PRACTICAL LEGISLATIVE REFORM AND THE LANGUAGE DIFFICULTY.—THE EXCURSIONS AND ENTERTAINMENTS.—THE CUMBERSOMENESS OF THE LOCAL CONTINGENT.

THERE is a regrettable delay in the issuing of the final programme of the forthcoming International Congress on Tuberculosis. As this time the congress meets at Washington it will be far removed from the usual beaten track followed by such gatherings. The holding of an international congress is a technique in itself, and a generation is arising of specially qualified organisers both in the ranks of honorary secretaries and of paid clerks and employees. These latter travel from city to city and make their livelihood in organising and managing the bureaucracy which is so important and indispensable a part of a congress, but more especially of an international congress. It is no easy matter to reply to several thousand persons writing from all parts of the world, often asking for the most minute details, not merely in regard to the discussions and the papers which they want to read or to hear but in regard to personal arrangements, hotels, food, the sort of clothes that should be worn; whether there are spring mattresses or feather beds; whether the water is drinkable or whether they must bring filters with them; whether it is the custom to "tip" waiters, and if so at what percentage on the expenditure; these and many other odd questions flow in. It would require a large and very well-informed staff to reply to each person individually. Thus early in the history of international, and even of national, congresses it became obvious that much trouble would be saved by issuing a small practical guide answering beforehand all the questions likely to be asked.

Then there is the organisation of the general and sectional meetings and the requirements formulated by the International Association of the Medical Press. These are all the more necessary, as when the International Congress of Hygiene met at Budapest in August, 1894, the French and British representatives of the medical press had made all the necessary arrangements for a press strike so as to persuade the managers of the congress to afford the necessary facilities, otherwise it would have been impossible for the press to describe the proceedings in an adequate manner. It was at the meeting of the committee of the International Association of the Medical Press which was held at Berne in April, 1905, that a series of suggestions or rules were drawn up for the guidance of organisers of international congresses. Thus it was then pointed out that there should be a press room where journalists could work quietly. An inflexible doorkeeper was to exclude all but journalists and to be specially careful in preventing the entry of exhibitors and business men generally who are ever hungering after gratuitous advertisements and had rendered the press room at the Madrid International Congress of Medicine in 1903 a perfect pandemonium. On the other hand, close to the door of the press room there should be a number of pigeon-holes, one for every accredited journal, where letters marked "Press Bureau" and other communications could be left for its representative. If exhibitors and others are allowed into the press room to interview journalists and to attempt to persuade them to go to look at their exhibits, or members of the congress call in because they are anxious to have notices of their papers and speeches, there is an end to all quietude and it is impossible to work. A "silent" room for journalists is the first requirement.

Over and above the general card of membership there should be a special card for journalists and there should be a reporters' table in each meeting room or hall where none but the bearers of such cards should be allowed to sit. As the congresses are divided into many sections—there will be seven sections at Washington—no journal can be represented in each section. Especially is this the case when the distance and the expenses are great. No European paper will send seven correspondents to Washington and even the American papers are not likely to

make such an effort. Therefore the committee sitting at Berne suggested, on behalf of the International Association of the Medical Press, that the secretaries of sections should consider it a part of their work to remain after their section had adjourned and there read out slowly to the press men gathered round the summary of the speeches. These are generally written on the spot by each speaker to whom headed paper on a cardboard and a pencil are handed directly he sits down. Of course, this system is not good. A speaker desires to follow the discussion and to listen to the answers made to his observations instead of writing a summary of what he himself has said. It would be much better if a shorthand writer, employed by the congress, could take down the speeches as they are delivered. This, however, has rarely been done; not only because of the cost but because the different languages in which the speeches are delivered are not all understood by the shorthand writers. Therefore each speaker has to summarise in writing his own speech, and it is these summaries that should be placed at the disposal of the press representatives after the meetings of the sections, though, of course, care must be taken that they are not removed from the section room. But the speaker who has anything of real importance to say and has any experience of such congresses will be careful himself to write a summary and to have, at his own expense, a few hundred copies printed beforehand in the three or four official languages and to see that a copy is placed in each pigeon-hole at the door of the press room.

The organisers of the congress, on their side, have to give indications to the members of the congress so that the latter may find the printers and the translators whom they need. On this much of the success of the congress depends, unless competent translators in each section translate the speeches the moment that they are delivered. This, however, means that each speech has to be delivered three or four times over. At Washington it would be four times, since the Spanish language has been added to the three usual official languages—namely, English, French, and German. When only one language is spoken then every effort should be made to speak in French, as this is by far the best understood of all modern languages in such gatherings. Germans, Russians, English, and all the Latin races know French better than any other foreign language. The fact that at the International Congresses of Medicine, of Hygiene, and at these latter and more recently created Congresses on Tuberculosis, there have been no efficient translations has robbed these vast and imposing assemblies of much of their practical usefulness. Where a scientific discussion only is held translations are not so necessary. Those who do not understand may ultimately in some report or translation find out something of what was said or intended. But a fairly good translation seems to be indispensable where a vote is given on some proposed and practical question. For instance, at Washington in Section VI. the laws and ordinances relating to tuberculosis, especially with reference to notification, are to be discussed. Someone is almost sure to move a proposition in favour of compulsory notification. This is a very important practical question and there are many others as important. For members to vote on them without thoroughly understanding what has been said seems somewhat farcical. On the other hand, if there are no such resolutions, what is the use of holding these congresses? The legislator outside and the general public are waiting for men of science and those who have the necessary special knowledge to give the needed advice. Then there is the whole question of sanatoriums, farms, camps, and dispensaries for the prevention and cure of tuberculosis. How far are these worth the expenditure and who should bear the financial burden—the State, the commune, or the individual? What preventive measures, especially in regard to children and unwholesome employment, has the State the right to take? This is a burning question on the other side of the Atlantic with the scandal of child labour in the cotton mills of the Southern States. On this and many other problems men of science have to make a pronouncement. Not many are shareholders in child-worked mills. Most are men of science and only men of science. They do not seek for the votes of electors. They at least, and generally speaking, should be able and willing to pronounce an impartial opinion guided only by the desire to save human life. But to do this in a really imposing manner everyone should hear and understand all the arguments brought forward, no matter what be the language in which they are presented to the congress. Then the principal arguments and the results in regard to these practical and legislative proposals should be made widely known by the popular press. The general elector will not read the official reports of the congress but he does read a daily paper. The mission of the congress is twofold. It is purely scientific in its first three or four sections, but the other sections are constantly dealing with practical, social, and legislative problems.

To turn to another perhaps less important matter, there is the question of excursions. In Paris the support of the general press in the campaign against tuberculosis was so welcome that the newspapers were encouraged to help in every way. It will be remembered that the *Matin* organised the gala representation at the Châtelet Theatre, the *Figaro* gave a grand fête at its offices, and it was *Le Journal* that managed the notable excursion all the way to the Riviera and Monaco. One or two special trains were retained for each of the excursions which were organised by the congress. The farthest was to the Pyrenees. Then there were special trains for Montigny, near Douai, where M. Loubet, then President of the Republic and Honorary President of the Congress, accompanied by some 200 members, went to inaugurate a new sanatorium. On the same day—it was the Thursday of the week—100 members went to Berck-sur-Mer, another 100 to Bligny, and yet another equally numerous body to the sanatoriums of Villiers sur-Marne, Ormesson, and Noisy-le-Grand. By having all the excursions on the same day each body of excursionists was kept within reasonable limits as to numbers, so that they were easily and well entertained at each place visited. Though the members paid for these journeys the sum was much less than the ordinary railway fare would have been and they enjoyed the luxury of first-class corridor trains which correspond to the American Pullman cars.

Consequently, members attending international congresses want to know what excursions there will be, when they are to take place, how long they will last, and what they will cost. The organisers of the congress, on their side, would like to know how many are coming before making their plans. But this is a vicious circle; no one will promise to come before knowing what will be done on arriving. The foreign committees have repeatedly asked the organisers at Washington what excursions and entertainments are to take place. On the other hand, the Washington committee has been persistently asking the national committees how many members they were going to send over. But the national committees can only send the names of those who have promised to go and many persons will not make up their minds till they see the programme. To-day, however, and even if a satisfactory programme were now issued and proved attractive to those who have hesitated to go, it would not be of much service. It is quite certain that only very few could at this late hour find berths on the steamers which, as already pointed out, are more crowded in September than in any other month of the year.[1] Therefore, and so far as Europe is concerned, the committee of management at Washington may be certain that there will not be many more members than those already announced.

According to the latest news from Washington it appears that the members of the congress are to be entertained at Philadelphia on Sept. 24th and 25th, in Washington during the week following, in Baltimore on Oct. 5th, in Boston on the 6th and 7th, and in New York on the 8th and 9th. It seems hardly conceivable that the entire congress will proceed to these towns or that it will be possible to lodge the members when they get there. On the other hand, no information is as yet forthcoming as to the basis on which a selection will be made. Then there are to be excursions from New York to the sanatoriums at Saranac and Liberty, which are in the northern part of the State of New York. But no details are as yet given. Further, I am informed that some French members of the congress will go to Canada for a considerable time before the congress meets, and they are to be entertained at Boston on Sept. 20th. It is to be hoped there will be efficient

[1] THE LANCET, July 25th, 1908, p. 252.

French speakers present on that occasion. The members of the French medical profession will find it difficult to comprehend French as it is spoken in French Canada and they will be less likely to understand English as spoken in Massachusetts. The Boston organisers will, however, doubtless make a point of calling upon Bostonians who know French to help.

The great secret of success in all these matters is to limit the numbers. Such Congresses as those of Medicine or Hygiene are actually menaced with extinction because they are too numerously attended. It was said that, all told, some 7000 persons went to Madrid in 1903 for the International Congress of Medicine and there were only four first-class hotels in the town. It was thought that by specialising the congresses the number of members might be reduced, but to judge by the formidable lists published there is some danger that an unmanageable crowd will assemble at Washington. Above all, a method must be devised to reduce the number of native members, for, being close at hand, they can easily attend. It does not cost them as much time or money, so they come in great masses, though in spite of their numbers they can but represent one voice in the congress—that is to say, only one nation among the many nations. Then it requires a very strong chairman to prevent these numerous inhabitants of the country from speaking too often. The chairman has to insist that those who represent other nations shall have an equal hearing and that other languages than that of the place where the congress meets shall be heard just as readily; indeed, if any preference is shown it must, of course, be to the guests. If this is not done, and with a strong hand, an international congress will soon degenerate into a national congress. Eminent men, some coming from great distances, have to give way to local nobodies and abandon the meetings, and the whole thing ends in failure. This I have seen on more than one occasion, and this time it has occurred to me that, instead of criticising after the event, it might be more useful to point out what are the difficulties while it is still time to take measures so that they may be overcome.

THE REVIVAL OF CHOLERA IN RUSSIA.

(FROM THE BRITISH DELEGATE ON THE CONSTANTINOPLE BOARD OF HEALTH.)

THERE has recently been a serious revival of cholera in Russia. Last year, it will be remembered, the disease became epidemic in the valley of the Volga early in July and thence spread very widely throughout European and Asiatic Russia, causing a large total mortality, though with few exceptions not producing an alarming epidemic in any particular town or district. The outbreak was reported to have come to an end some time in January last and for about six months the whole country appears to have been free from cases of the disease. The present revival of cholera seems to have begun a little later than last year's outbreak. Detailed information as to its origin is as yet wanting and there is some confusion in the returns both as to dates and as to numbers of cases and deaths. But information officially communicated to the Board of Health at Constantinople indicates the course of the epidemic.

On July 8th (21st) a labourer who had come from Baku died in hospital at Astrakhan from true cholera; on the same date a local resident in Astrakhan also fell ill of the disease. The subsequent returns have been rather confused; from July 8th (21st) to 15th (28th) there were 15 cases and 7 deaths. On the 19th (August 1st) 4 new cases and 2 deaths occurred; on the 20th (August 2nd) there were 7 cases and 2 deaths; and the totals from the beginning were put at 42 cases and 19 deaths. On the 22nd and 23rd (August 4th and 5th) there were 8 fresh cases and 7 deaths, and on the 24th (August 6th) as many as 22 new cases with 4 deaths. On the 25th (August 7th) a fatal case occurred "in the roads on the Caspian Sea," presumably on a ship.

In the meantime the disease had been spreading in the Astrakhan government. 2[1] cases and 1 death occurred (date not stated) in the Tsarevo district, and one fatal case on the island of Zaiatz. In the whole government 34 cases of cholera with 16 deaths occurred between July 8th (21st) and 19th (August 1st). On July 22nd and 23rd (August 4th and 5th) there were 16 cases and 3 deaths; on the 24th (August 6th) 10 cases and 5 deaths; and the totals from the beginning were put at 105 cases with 40 deaths. Another return stated that between July 20th and 25th (August 2nd and 7th) there were 92 cases and 38 deaths in this government. On July 27th (August 9th) there were 36 fresh cases here with 26 deaths.

The Saratof government lies immediately to the north of that of Astrakhan. The town of Tsaritsyn seems to have been the first infected. On July 11th and 12th (24th and 25th) there were 11 cases of cholera here with 8 deaths, and on the first-named date 5 cases with 3 deaths were removed from boats arriving at Tsaritsyn (presumably from Astrakhan). By July 13th (26th) there had been 25 cases and 14 deaths. On the 18th (31st) there were 22 new cases and 12 deaths; on the 20th (August 2nd) 11 cases and 6 deaths; and on the 21st (August 3rd) 17 cases with 10 deaths. The totals up to the last-named date were 113 cases and 55 deaths. In addition, 4 cases with 2 deaths occurred in the Tsaritsyn district before July 18th (31st) and 8 cases with 3 deaths in the same district on the 22nd (August 4th). One case was seen in the Balashef district at some date unnamed; 1 fatal case was recorded in the village of Otradui on July 11th (24th); and in the town of Saratof there were 2 cases on the 18th (31st). 3 cases were removed from ships on the river on the same day; 3 more cases occurred on the 19th (August 1st); 4 cases with 1 death on the 20th and 21st (August 2nd and 3rd); and 4 cases on the 22nd (August 4th).

In the government of Saratof 88 cases with 44 deaths were registered from the beginning of the epidemic down to July 19th (August 1st) and 152 cases with 74 deaths between that date and the 24th (August 6th). On July 26th (August 8th) there were 11 fresh cases and 15 deaths in this government and on the 27th (August 9th) 30 cases with 15 deaths. Among these was a fatal case in the town of Kamyshin, on the borders of the Astrakhan and Saratof governments.

In the Samara government there were 2 suspected cases and 1 death in the village of Balakou on July 11th (24th). Between the 19th and 24th (August 1st and 6th) there were 4 cases with 3 deaths in the government. Some time before the 26th (August 8th) 3 suspected cases had been seen in the faubourg of Pokrovski and the village of Rozno. In the Simbirsk government 1 case was removed to the Syzran Hospital from a steamer coming from Astrakhan on July 18th (31st) and a supected case occurred in the town of Simbirsk some time before the 26th (August 8th). In the government of Kazan 2 suspected cholera cases had been recorded some time before the last-named date. So far as is known at present this is the most northerly point that the epidemic has yet reached.

Westward the infection has spread from Astrakhan to Rostof and the Don Territory. In the prefecture of Rostof-on-Don 2 cases of the disease were seen on July 20th (August 2nd); on the 22nd (August 4th) 1 fatal case occurred in Rostof itself; on the 26th (August 8th) there were 14 cases here with 8 deaths; and on the 27th (August 9th) 7 cases with 2 deaths. In Nahitchevan, close by, 1 case was reported on July 25th (August 7th). In the Don Cossack Territory there were 2 suspected cases on July 22nd (August 4th) in the village of Kalatal; between the 22nd and 25th (August 4th and 7th) 14 cases and 10 deaths were registered in the whole territory; and on the 25th and 26th (August 7th and 8th) 2 cases with 3 deaths.

On July 26th (August 8th) 2 cases of cholera were seen at the station of Taganrog; they had presumably brought the infection from Rostof. At Novorossiisk, on the Black Sea coast, a suspected case was seen on August 1st (14th); the diagnosis of cholera was subsequently confirmed but the patient recovered. On August 4th (17th) 2 suspected cases were observed at Ghelindjik, situated 40 kilometres from Novorossiisk. Finally, a case of cholera was imported to Baku from Astrakhan on August 1st (14th) and on the following day a fatal case occurred there in a local inhabitant; and from Tiflis the Turkish Consul reports the occurrence on July 24th (August 6th) of a suspected case.

It will be seen from the above that information on the course of the outbreak is in many instances very incomplete and spasmodic. The totals for the whole country have been stated to be as follows: between July 8th and 19th (July 21st and August 1st) 98 cases and 47 deaths, and

between the last-named date and July 26th (August 8th) 262 cases and 125 deaths. This would bring the totals from the beginning down to August 8th (New Style) to 360 cases with 172 deaths. It is probable that these figures are somewhat less than the actual numbers.

In consequence of this serious extension of cholera in Southern Russia the Constantinople Board of Health has imposed the following measures on arrivals from Russian ports. Persons arriving from any port on the Black Sea and Sea of Azof situated between Sulina (excluded) and Batum (included) will be subjected to a medical visit, and the effects of third-class passengers and crews will be disinfected. These measures will be applied "facultatively" in the lazaret of Sinope or in that of Monastyr Aghzi (at the mouth of the Bosphorus). Arrivals from Rostof, Taganrog, Novorossiisk, and Batum will be subject to five days' quarantine and disinfection, to be applied in the Sinope lazaret; passengers from these ports will further be liable to five days' surveillance in their place of destination. The importation of the following objects from Russia to Turkey is prohibited: caviare, fish (fresh, smoked, or salted), soiled body linen and clothes (imported as merchandise), bedding and furniture that have been used, rags, old papers and journals, carpets and embroideries that have been in use, old sacks and baskets, fresh animal products, hoofs, claws, horsehair, down, raw silks and wool, raw hides, untanned skins, and fresh skins.

Pilgrim ships from any Russian ports in the Black Sea will be subjected to five days' quarantine, disinfection, and rat destruction, to be applied in the Sinope lazaret; the five days will begin to count only from the moment when the disinfection process is completed. Such ships will pass through the Bosphorus and Dardanelles in quarantine; their pilgrims will not be allowed to land anywhere before reaching the Hedjaz; they will go straight to the Abu-Saad lazaret, near Jeddah. The ships may, however, take in water, coals, provisions, and other pilgrims in the lazarets of Monastyr Aghzi, Clazomene (Smyrna), and Beirût. Ships with more than 1 per cent. of pilgrims on board (calculated on their registered tonnage) will be treated as pilgrim ships. Ships with large numbers of emigrants or similar masses will be subject to the same measures as pilgrim ships in the Sinope lazaret. Finally, it may be noted that the Alexandria Quarantine Board has prohibited pilgrims from Russia, Turkey, and the Balkan countries from landing in Egypt; they must pass the Suez Canal in quarantine. This decision has caused some dissatisfaction here, as Turkey and the Balkan countries are so far entirely free from cholera or other disease.

Constantinople, August 20th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University and the Working Classes.

THE University course of Social Study Lectures, which was promoted in the interests of the working classes, has proved so successful that an attempt is being made to develop and to extend it and to establish a workers' college. As a preliminary to a more ambitious attempt the University has placed at the disposal of the Workers' Education Association a lecture-room, a reading-room, and a library. The object is to popularise definite and serious study and to encourage discussion and social intercourse. Any working man or woman may become a member and it is hoped that each student will pursue a systematic course of reading and write exercises or essays. The subjects proposed for the coming term include economics, industrial conditions, law for social workers, British institutions, and sanitation and hygiene. The lectures upon sanitation and hygiene are to be delivered by Dr. John Robertson and from a medical point of view are of the greatest importance, for by their means a knowledge of the essentials of healthy life may gradually be scattered amongst the people.

The Health of the City.

Dr. Robertson's report upon the quarter ending June 27th last repeats the tale with which we are getting so familiar—a low and decreasing death-rate and a still more rapidly falling birth-rate. The death-rate was 14·8 per 1000, that being a record for the second quarter. The birth-rate was 28·4 per 1000, which contrasts badly with the average of 31·9 for the past ten years. Measles was decidedly less prevalent than in the same quarter last year and was responsible for only six deaths, whilst in 1907 it proved fatal in 155 cases. Whooping-cough, on the contrary, was decidedly more prevalent and more fatal, resulting in 119 deaths, as against 62 in the same quarter of the previous year. The results as regards scarlet fever, enteric fever, and tubercle were not greatly different from those of the same quarter of 1907, except that the enteric fever was of a somewhat virulent type, but the number of cases of diphtheria (161) was decidedly less than in the same period of 1907, when 245 cases were notified.

West Bromwich District Hospital.

The financial report presented at the annual meeting of the governors of the West Bromwich District Hospital must be the cause of serious concern to all well-wishers of the hospital, for it reveals a deficiency account of £1766 as contrasted with £1217 in the previous year. Some reference was made to abuse of the out-patient department, especially by people who claimed that they subscribed to the institution through the Hospital Saturday Fund, but the matter was dropped when it was stated that a conference was to be held to deal with the whole question of the out-patient department.

Sept. 1st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Ptomaine Poisoning.

THE repeated occurrence of attacks of illness, often fatal, from ptomaine poisoning after eating what has seemed to be perfectly wholesome food is a proof, if any were needed, that the subject is well deserving of the attention of those specially skilled in preventive medicine. At present the victims are helpless. There was an inquest the other week at Greenfield, near Saddleworth, on a boy aged 13 years. He was a member of a band which was playing at a cricket match. During an interval he and a companion went to a shop and bought a pie which the two ate between them. One died and the other was said to be in a dangerous condition. The medical man in attendance, Mr. G. Stonehouse, in giving evidence, said that others were suffering from ptomaine poisoning and that all his patients had eaten pies made by the same firm. He considered this disease to be a bacterial infection and that bacteria were still alive in the boy's body, because he was "breaking out in blotches." He believed the jelly in the pies was the peccant matter and that the recent hot weather would favour bacterial growth and development, while the putrefaction would not be perceptible to taste or smell. The maker of the pies deposed that they were made on the Thursday afternoon, that he and other employees partook of them, and that none of them were affected. "The pies were jellied after being made, the jelly being made from bones and cowheels." It does not appear whether the pies were eaten by the maker and his workpeople before or after being "jellied." Bones may be fresh or otherwise and cowheels likewise, but the jury, after giving the verdict of ptomaine poisoning, added that no blame attached to the makers of the pies. A woman ate part of a pie on August 1st; she was taken ill and died after a few days' illness. Tinned salmon was the cause of illness in a boy living near Burnley and possibly caused the death of his father, for after eating some of the salmon he went to bed and was found dead the next day. At Hanley a verdict of "Death from ptomaine poisoning from eating pork" was returned on August 7th. A young man, aged 26 years, was taken ill after eating a pork chop for his dinner and died in hospital. Mr. J. M. Longford, in his evidence, said that pork and shell-fish were peculiarly liable to contain "ptomaine poison in hot weather." On August 24th an inquest was held at Mossley on a case of suspected ptomaine poisoning. A woman about a fortnight before her death had some potted meat. She was seen some days afterwards by Dr. A. W. Harrison who suspected poisoning and said that the whole of the symptoms pointed to bacterial infection. He was of opinion that septic pneumonia from which she died was caused by something that

she had eaten. Such cases occur with too much frequency. Food apparently wholesome has become a deadly poison, against which there is no warning or protection. It is a subject worthy of investigation, not only from its intrinsic interest but in order to prevent if possible the occurrence of the deadly change and to provide some way of avoiding a terrible danger.

Inspection of Ships and Food.

The members of the Port Sanitary Authority of Manchester made an inspection about ten days since of the places on the Ship Canal where their work is carried on. The authority consists of 13 representatives altogether—four each for Manchester and Salford, and one each for Stretford, Warrington, and districts grouped about Eccles, Runcorn, and Widnes. Mr. W. F. Dearden is the medical officer to the authority. All vessels entering the canal are inspected by the officials and their sanitary condition and freedom from disease reported on. It was thought in the early days of the canal that Manchester suffered commercially somewhat, as compared with other ports, from the regulations on the canal as to foodstuffs being more stringent than they were elsewhere. However that may be, there will from to-day be no difference, as the Public Health (Regulations as to Food) Act, 1907, comes into operation at all the ports of the kingdom. It concerns itself with the inspection of food and embodies the main principles which have guided the Manchester authority for some years past. Good arrangements have been made at the various places on the canal—as Runcorn, Port Ellesmere, &c.—for food inspection, and the people of Manchester and a wide district around have good reason to be grateful to those who carry out the powers of the authority in guarding against the introduction of unwholesome foodstuffs.

Dukinfield Corporation and Medical Fees.

At Dukinfield the highways committee of the town council has decided not to pay an account of three guineas for medical attendance on one of the corporation workmen who had received an injury. Before the Workmen's Compensation Act came into force the custom of the corporation was to pay full wages to an injured workmen and also the charge for medical treatment. Now it appears that half wages and no medical fees are allowed. When the matter was discussed in the council last night only one member, an alderman, was found to support the plea of generous dealing with the workmen. "In not meeting the doctor's bill in the case of injured employees he maintained that the ratepayers would regard it as a niggardly, parsimonious, contemptible piece of business." In spite, however, of this expression of opinion this gentleman was the only dissentient from the passing of the minutes. Should the decision of the Dukinfield council be generally followed the Compensation Act will not gain in popularity.

Whisky as Medicine.

An inquest was held a few days since in Hulme on a child aged five years. The mother said that the child had complained of illness, so she bought sixpennyworth of whisky and gave her a teaspoonful that evening and one the next morning to ease her pains. The bottle was put on the mantelshelf and sometime in the morning she found the bottle empty and the child in bed unconscious, in which state she remained until her death the day after. Dr. A. N. Benson, who saw the child on the day before her death, said that she was suffering from acute alcoholic poisoning. A juryman asked if sixpennyworth of whisky would be sufficient to cause a child's death and Dr. Benson said that there would be about six ounces in the bottle and if a child drank that quantity undiluted it would kill the child. The verdict was "Acute alcoholic poisoning by misadventure." It seems remarkable that a child should drink six ounces of undiluted whisky and that its pungency did not stop the drinking of it.

Sept. 1st.

NEWCASTLE-UPON-TYNE.

(FROM OUR OWN CORRESPONDENT.)

The Public Health of the County of Durham in 1906.

THE issue of this report was delayed by the regrettable illness of the county medical officer of health, Dr. T. Eustace Hill, which necessitated a somewhat prolonged absence from work. It is pleasing to know that Dr. Hill has now quite recovered and is able to apply himself to his duties again with all his former zeal and ability. The report is one of considerable interest, dealing, as it does, with the health of the people concerned in one of the most important industries of this country—namely, that of the Durham coal fields. The area of the county was 637,672 acres, the same as in the preceding year, and included five boroughs, 24 urban districts, 14 rural districts, and two port sanitary districts. The population, based on the rate of increase between the censuses of 1891 and 1901, was estimated to be 822,160, an excess of 10,600 over 1905. The natural increase of the population was, however, 14,546, and, further, the estimates of the district medical officers of health exceed the official estimate by over 33,000, the greater part (26,000) of this number being allocated to the rural districts. Dr. Hill appears to agree with the probability of a fallacy in the official estimate, for he says that "owing to the prosperity of the coal trade (1906) and the opening out of a number of new collieries it is highly probable that the population is under-estimated," and a further argument in support of the under-estimate is that afforded by the fact that a large number of new dwellings had been erected without apparently in any way reducing "the very serious over-crowding." The birth-rate for the county was 35·2 per 1000 of population, an increase of 0·8 over 1905 and 8·2 per 1000 above the average for England and Wales. In all the agricultural portions of the county the birth-rate was considerably below 30 per 1000. The death-rate was 17·5 per 1000 of population, an increase of 0·1 over 1905 and 2·1 higher than that for England and Wales. "Considering the high mortality from diarrhœal diseases during the third quarter of the year the total death-rate cannot be regarded as unsatisfactory." The death-rate in the rural districts (17·9) considerably exceeded that for the urban districts (17·3). Infantile mortality was equal to a rate of 157 per 1000 births registered, as compared with 159 and 162 in the two preceding years. "Although the county infant mortality rate has shown a tendency of recent years to progressively decline it still very greatly exceeds the rate for England and Wales, which in 1906 was only 133." The death-rate from zymotic diseases was equal to 2·40 per 1000 of population, which is rather higher than in 1905 (2·37) and much higher than for England and Wales (1·73). Enteric fever was responsible for a total death-rate of 0·22 per 1000 of population (1090 cases), which is more than twice as high as the rate for England and Wales. The total deaths from phthisis numbered 904, a rate of 1·09 per 1000 of population. In the previous year the rate was only 1·00. The deaths from other forms of tuberculous disease numbered 610, practically identical with the number in the previous year. The total death-rate from all tuberculous diseases was 1·84 per 1000 of population, which is 0·10 higher than in 1905. Malignant diseases were responsible for a death-rate of 0·65 per 1000 of population as compared with a rate of 0·58 in 1905. "Generally speaking, the water-supply to the populous districts in this county is satisfactory, but unfortunately many dairy farms in outlying rural areas are dependent for their supply on springs and shallow well-waters which are liable to serious pollution." Drainage and sewerage appear to have made "fairly satisfactory progress" during 1906, but it is evident that very much yet remains to be done. In some districts the local authorities still require to be convinced that well-constructed covered drains and sewers are immeasurably more sanitary than objectionable open channels. Dealing with factories and workshops Dr. Hill says that a perusal of the tables suggests either that the inspections made are not very frequent or minute, or else that the sanitary condition of the workshops and workplaces is very satisfactory, as the defects reported are neither numerous nor serious. This publication may be regarded as an expression of opinion by one of our ablest and most experienced sanitarians in the first decade of the twentieth century. Dr. Hill makes no rash or unsupported statements. He quotes facts or authorities and draws clearly thought out and carefully considered conclusions. The report is noteworthy for its eminent reasonableness and truth and it is to be hoped that those responsible for the conditions—such as the want of proper housing accommodation, &c.—which Dr. Hill on irrefutable evidence shows should not be, will read this report carefully, for it teaches its own lesson. Bad housing may appear cheap but the

results entail an indirect expense on the owners which more than balances any apparent saving.

Overcrowding in the County of Durham.

The conditions under which people live in the area under his control is evidently a source of serious concern to Dr. Hill. In spite of the large number of new dwellings erected during 1906 the "gross overcrowding" was apparently in no way relieved. In many of the district officers' reports reference is made to the overcrowding in houses and also to the necessity for improving the housing conditions. The medical officer of health of Chester-le-Street calls attention to the fact that some of the new houses erected in one of his districts did not contain the required accommodation for a working man's family, and he expresses the opinion that legislation should be introduced to deal with the floor space of rooms in order to prevent restriction in their area. In consequence of a representation by the county council as to the insanitary condition of a large number of back-to-back houses in one part of the county, the Local Government Board caused an inspection to be made by one of its medical inspectors, but his report had not been received at the time of writing. The county council has itself had, "after vainly endeavouring to induce the local authority to adopt Part III. of the Housing Act and erect workmen's dwellings, and having failed also in their efforts to persuade the owners of collieries to provide the necessary dwellings for their workmen," to carry out a scheme for the erection of workmen's dwellings. The results of this apparently serious condition of overcrowding in the county of Durham are to be found indicated in Dr. Hill's annual report. Thus, among the "chief causes" of the high rate of infant mortality Dr. Hill puts first the "gross overcrowding of dwellings which exists." Speaking of diarrhœa, he says "it is, unfortunately, a fact that however careful a mother may be it is impossible to insure healthy infant life in many of the dwellings in our industrial districts"; and in another place, "the ill-effects of improper feeding, bad housing, and the pollution of the soil and air about dwellings are certain to manifest themselves in a high diarrhœa death-rate." The provision of adequate hospital accommodation and the more frequent use of that already provided are urged, on the ground that it is quite impossible effectually to isolate cases of scarlet fever, or, as a matter of fact, any cases of infectious disease in a large proportion of the dwellings in the industrial districts of this county. Again, under the head of phthisis and tuberculosis it is reported that the death-rate from phthisis in rural districts was only 0·97, but in the urban districts 1·19. "Nearly all phthisical patients benefit considerably as a result of sanatorium treatment, but, unfortunately, the patient on leaving the sanatorium has often to return to home or industrial conditions where it is impossible to continue the essentials of sanatorium treatment and a relapse occurs. If proper housing and suitable employment could be secured for phthisical patients on their leaving sanatoria a very much larger proportion would be permanently benefited."

The Causes and Control of Infectious Diseases in the County of Durham (1906).

The control of infectious diseases is one of the main responsibilities of the medical officer of health. Every year adds something to our knowledge of epidemiology, and perhaps the most interesting fact which has recently come to light in this connexion is the so-called "carrier," the person, that is to say, who either does not suffer from the disease himself or contracts merely a mild form of the disease in virtue of his own immunity or partial immunity to that particular organism is, nevertheless, able to carry it from the infected to the healthy, or who, having recovered from an attack of a specific disease, harbours the organism in his body for long periods of time and so may be an unsuspected source of possible danger to others for very long periods of time. The existence of "carriers" is fully recognised by Dr. Hill in the references in his annual report to the infectious diseases. In connexion with diphtheria he expresses his regret that it is unfortunate that medical practitioners do not make more use of the facilities granted by the county council for bacteriological examination of material from suspected cases of the disease, and records his opinion that it is certainly desirable that in the case of children who have suffered from diphtheria a bacteriological examination of the throat should be made after all symptoms have disappeared and before they are permitted to return to school. Besides these unrecognised mild cases of the disease and still infectious convalescents certain other possible causes of the spread of the disease are mentioned. Of these, the attendance at school of ailing children or children from infected houses is important. Some local medical officers complain that pressure is used by the education authority to force such children to attend school in order to keep up school attendance averages. And while in the general opinion direct infection at school and in the home was the chief cause of the prevalence of diphtheria, in Durham itself the increased prevalence was attributed to the new sewerage scheme involving the "disturbance of the soil about dwellings." Scarlet fever "now inspires no dread in the majority of our working-class population," and that on account of the very mildness of the type of disease at present prevailing. The parents are therefore careless about the isolation of children suffering from the disease and to this and to "mild unnotified" cases the spread of the disease is attributed. Enteric fever has been steadily and rapidly increasing in the county of Durham during the last five years, 674 cases in 1902 and 1090 cases in 1906. One epidemic in 1906 was clearly traced to the milk-supply from a dairy farm which was dependent for its water-supply on a grossly polluted and badly constructed shallow well. In another outbreak there was evidence of some mild unrecognised cases of the disease having occurred and, as a result, specific pollution of conveniences and probably of the drains and sewers. In other places where the disease was prevalent the infection was attributed to defects of drainage and insanitary conveniences, possibly infected by unrecognised cases and, in a few cases, direct infection is stated to have been the cause of the spread of the disease. With regard to tuberculous diseases, voluntary notification in the places where it had been in force was most unsatisfactory. Commenting on the value of sanatorium treatment, Dr. Hill says that it is now generally recognised that as a rule a permanent cure can only be effected when the disease is dealt with in an early stage, but that there is very little doubt that, in all cases, sanatorium treatment prolongs the life of a patient and is of educational value. One district has decided to utilise its small-pox hospital for the reception of advanced cases of pulmonary tuberculosis on preventive rather than on curative grounds. On the subject of milk and tuberculosis Dr. Hill states that now that it has been proved that tuberculosis in the cow and the human subject is one and the same disease the necessity for the early detection of tuberculosis in the cow is evident, and it is therefore desirable that periodical veterinary inspection of all milch cows should be enforced. In many districts the purity of the milk-supply and the means necessary to insure it receive but little attention.

Sept. 1st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Cardiff Infirmary.

IN the supplementary report of the board of management of the Cardiff Infirmary for 1906 it was pointed out that there was urgent need for increasing the number of beds in the institution and it was suggested that a new pavilion should be erected, with accommodation for 64 patients, together with a six-bed ward to be used for isolating any cases of infectious disease which might inadvertently gain admission to the infirmary. The estimated cost (£30,000) of this additional building has already been subscribed and the committee is now met with the problem of maintaining the beds when the pavilion is completed. The total income during 1907 from all sources was £11,486 and the expenditure amounted to £14,190, and it is estimated that after about two years from now the expenditure will reach some £18,000 annually. Very generous response has been made to the appeal for further subscriptions. Mr. John Cory, who is already an ardent supporter of the infirmary, has offered to give a sum equal to 25 per cent. of all additions made to the subscription list. Mrs. John Nixon has given 10,000 guineas to endow ten beds. Mr. Henry Webb has endowed three beds, and one bed has been provided for with a donation of 1000

guineas from an anonymous subscriber. The board of management is to be congratulated upon the economical working of the institution as shown by the statement in the last annual report that in 1907 the average weekly cost for provisions was 5*s.* 8*d.* per head, and this amount was higher than it would have been but for the higher price, amounting in the aggregate to £155, which had to be paid for milk on account of the stringent regulations enforced by the board in order to insure a pure supply.

Health Report of Cardiff.

For many years past the medical officer of health of Cardiff (Dr. E. Walford) has added very much to the value of his annual report by including statistics which relate to a period extending over a considerable number of years, since the time, in fact, when the population of the town was just over 20,000, or about one-tenth of what it is at the present time. The report for 1907, which has just been issued, shows that in the middle of the last century there was a birth-rate of 44 per 1000, a death-rate from all causes of 29 per 1000, and a zymotic death-rate of 8·6 per 1000. The respective rates in 1907 were 26, 15, and 1·9 per 1000. Certain portions of the town are very crowded with houses, but strangely enough this fact is not reflected in the death-rates. For example, in East Cardiff there are 124 persons per acre and a death-rate of 11·5 per 1000, while in West Cardiff with 30 persons per acre the death-rate was 12·5 per 1000, and in Central Cardiff with only 15 persons per acre it was 15 per 1000. The population of each district is about the same. It would be of interest to have from Dr. Walford some explanation of these figures which are contrary to what would be expected. The infantile mortality rate in Cardiff—131 per 1000 births—is still high in spite of the excellent work that is being done by the health visitors. Dr. Walford considers that in any scheme for reducing the rate of infantile mortality the health of the mother during pregnancy must be taken into consideration and measures at present adopted must be extended so as to include instruction to pregnant mothers in the preservation of their own health as well as that of their children. He also advocates a further development of the present system of visits by women inspectors; a better control and supervision of the milk supplied to infants artificially fed; special attention to the cleansing of streets and the flushing of street gullies, and the removal of all offensive accumulations during the summer months; the adoption of the sanitary clauses of the Public Health Acts Amendment Act, 1907, and the revision of the regulations under the Dairies, Cowsheds, and Milkshops Orders. It has been the custom for some time in Cardiff to take a certain number of samples of milk for analysis unofficially, that is to say, the exact methods laid down in the Sale of Food and Drugs Act have not been complied with and the dealer does not know, therefore, that the samples are being taken for analysis. It is a little disquieting to find that of the samples thus obtained 31 per cent. were adulterated compared with 8·5 per cent. of the samples officially taken and concerning which prosecutions could be instituted.

The Falmouth Hospital.

In February last the Falmouth Hospital had a deficit balance of £65. Mr. R. Davey of Falmouth offered to subscribe half of that amount if by the end of June the other half had been raised. The president issued an appeal and by June 30th £158 had been received. This with Mr. Davey's gift gave the institution a substantial balance which is much appreciated by the committee as the ordinary income of the hospital is never sufficient to meet the expenditure.

Sept. 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Motor Disaster near Fort Augustus: Serious Injury to a well-known Medical Man.

A TERRIBLE motor-car accident occurred on August 18th at Inchnacardoch, about two miles from Fort Augustus, which resulted in the death of Robert Hamilton, a chauffeur, and serious injury to Dr. John Kerr of Inverness. It appears that the car, which was a 10–12 h.p. "Swift" and quite new, left Inverness in the forenoon for Fort Augustus. All went well till Inchnacardoch was reached. There while descending a rather steep brae approaching a small bridge the car failed to take the curve, and striking the parapet of the bridge dashed over an embankment and fell a considerable distance. Hamilton was killed instantaneously, and Dr. Kerr was badly injured and rendered unconscious. Dr. Kerr was conveyed in a shooting tenant's car to the Lovat Arms Hotel, Fort Augustus, where he was soon attended to by his brother, Dr. G. W. E. Kerr of Inverness, and by Dr. J. Luke. Dr. Kerr returned from South Africa a few years ago. The deceased chauffeur, who was only 22 years of age, was a native of Stranraer and was recognised as a careful driver.

Aberdeen Royal Infirmary Milk-supply: Charge against the Dairyman.

Under the Sale of Food and Drugs Act Andrew Anderson, dairyman, Newmachar, was prosecuted in the Aberdeen sheriff court on August 20th. The charge was that on July 21st he sold and delivered to the Aberdeen Royal Infirmary 60 gallons of sweet milk in terms of contract with the directors of that institution, which, on analysis, was found to be not of the nature, substance, and quality of the article contracted for, in respect that it was found to contain not more than 2·70 per cent. of fat, being a deficiency of 0·30 (or 10 per cent.) of fat, and of 0·21 (or 2½ per cent.) of solids other than fat, under the standard fixed by the Board of Agriculture. The evidence showed that the samples were taken by means of a "dipper" after stirring, whereas the Board of Agriculture suggests that the most correct and most certain method of taking samples is by a glass tube, or if that is not available that the milk should be mixed thoroughly by pouring from vessel to vessel and then "dipped." The sheriff on these grounds found the charge not proven.

Sept. 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Campaign against Tuberculosis.

ON Thursday, August 27th, the Countess of Aberdeen presided in Dublin at a conference of delegates forming the Tuberculosis Exhibition Consultative Committee in connexion with the Women's National Health Association of Ireland. There were also delegates present from the various urban and district councils of Ireland, as well as from the various organisations working in the anti-tuberculosis campaign, so that the assembly was a very representative one. Lady Aberdeen gave an interesting account of the work of the Exhibition during the past year, saying that it had visited 67 districts in Ireland and that the total estimated attendances at the lectures was 550,000, while many for want of room were crowded out. Over 300 set lectures were given at the exhibitions, and in addition every form of demonstration was employed, and there were also quiet talks to the public individually in order to bring home the truth about tuberculosis. Lady Aberdeen emphasised the unanimity that had prevailed amongst all classes and creeds and conditions in joining in the great movement on behalf of their country. She also mentioned that at the Washington Congress on Tuberculosis a prize would be given to the society that had done the most effective work against tuberculosis since 1905, and her apology for having worried the local secretaries of the various exhibitions held all over Ireland for details and estimates must be that in their name she was applying for this prize. Sir Otto Jaffe, an ex-Mayor of Belfast, moved and Dr. S. Agnew, medical officer of health of Lurgan, seconded a unanimously adopted proposal that the report should be received, printed, and circulated. Lady Aberdeen then said that with reference to the future they proposed to have a Tuberculosis Crusading Van to go round the remoter villages and those outlying parts of the country where the people could not be reached in any other way, and towards the expense of this Captain Wilkinson, on behalf of the trustees of the Pembroke Irish Charities Fund, had sent her a cheque for £500. The van was purchased and would soon begin its

peregrinations. A vote of thanks having been passed to the trustees Mr. P. J. O'Neill, J.P., chairman of the County Dublin County Council, and also chairman of the General Council of all the County Councils of Ireland, proposed, and Sir John Byers seconded, the following motion:—

That this meeting heartily approves of the principles of the Tuberculosis Prevention (Ireland) Bill now before Parliament and earnestly desires to see it passed into law.

Mr. T. Laffan (Cashel) proposed, and Mr. J. Gernon (of the Wicklow urban council) seconded, an amendment:—

That both the sanatorium proposals and those relating to notification in Mr. Birrell's Bill be deferred for further experience.

An interesting debate followed, in which the President of the Royal College of Surgeons in Ireland (Mr. J. Lentaigne), Mr. W. Byrne, veterinary surgeon, Roscommon, and Mr. T. W. Russell, M.P. (Vice-President of the Department of Agriculture) all spoke in favour of the Bill, while no one took the side of the amendment. Subsequently, on a direct appeal being made to Mr. Laffan by Mr. R. Hennessy, chairman of the Queenstown urban council, the amendment was withdrawn and the original motion as proposed by Mr. O'Neill and seconded by Sir John Byers was adopted with two dissentients. Sir Rubert Boyce, professor of pathology in the University of Liverpool, who happened to be present, was asked by Lady Aberdeen, as a member of the Royal Commission on Tuberculosis, to address the meeting. In the course of his speech he said that notification of tuberculosis went to the root of the whole matter and that unless notification were made early they could not proceed scientifically. As an Irishman he thanked Lady Aberdeen for the splendid way in which she had led a movement which must turn out to be of great benefit to the country.

The Belfast Health Commission.

The details of a draft report made by the joint public health, improvement, works, and market committee of the Belfast corporation upon the report of the Belfast Health Commission have been published. This joint committee was appointed in May by the Belfast city council, and the draft report—the greater portion of which has now been published in the *Northern Whig*—was the work of a small subcommittee. It has not yet been submitted to the health committee and it will, after that, have to be considered by the city council. If in its final state it takes the form of what has appeared in the *Northern Whig* it will not meet with general approval. It contains so many direct references, some anything but complimentary, to individuals (such as the Irish Registrar-General) and to bodies (the Belfast Citizens' Health Committee, the Local Government Board, the Belfast Water Board, and the Belfast board of guardians), as well as indirect references (as, for instance, to members of the Belfast Health Commission), that there is bound to be a series of replies, all of which will only tend to bring home more fully and more clearly the value of the criticism contained in the report of the Health Commission. The draft report exhibits a very slight acquaintance with modern preventive medicine, but it may serve one good purpose. The discussion which is sure to occur in reference to this action of the Belfast city council in an attempt to deal with the report of the Health Commission will have a most educating effect on the public at large.

Sept. 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Alterations in the Examinations for the Post of Agrégé.

THE Minister of Public Instruction has recently modified the regulations which deal with the "degree" of *agrégé* in the Faculty of Medicine and the joint Faculty of Medicine and Pharmacy. The new regulations will not come into force until the commencement of the scholastic year 1909–1910. The qualifying examination consists of three sections: (1) anatomy, physiology, physics, chemistry, and natural science; (2) medicine; and (3) surgery and obstetrics. In the first and third sections special branches may be taken according to the particular branch to which the candidate has devoted himself. The maximum number of candidates who may be declared qualified (*admissible*) is decided by the Minister. The jury is composed of nine members chosen by the Minister from among the titular or honorary professors and the *agrégés*. No one faculty may have more than three members on the jury. The course of the examination is as follows: (1) A written essay in anatomy, physiology, and histology; (2) a *viva voce* examination lasting three-quarters of an hour in general pathology; (3) a clinical examination; and (4) an examination in practical pathological anatomy. Once a candidate has been declared qualified he maintains his position for life and all candidates who were qualified in examinations held previously to November, 1907, are dispensed from the above-mentioned examinations. For admission as *agrégé* the following tests have to be passed: 1. The candidate must hand in his testamurs and other documents (*titres*). 2. He must give a lecture of one hour's duration without an assistant or notes. Four hours are allowed for the preparation of this lecture. 3. Practical work. The judges in the various sections are appointed by the Minister from among the professors. Members of the Institute, of the Academy of Medicine, professors of the College of France, of the Museum, of the Faculty of Medicine, and of the joint Faculty of Medicine and Pharmacy can sit on the jury, but they can only have one place in any one section.

A Case of Sleeping Sickness, Spinal Form.

At a meeting of the Hospitals Medical Society held on July 3rd M. Hattan Larrier and M. Sézary showed a patient who had recovered from an attack of the spinal form of sleeping sickness. The disease had been contracted two years previously in the Congo. The first sign of illness was a mental affection. The paraplegia, of which there had been some signs in Africa, became marked a few days after the patient had arrived in France and was accompanied by muscular atrophy, diminished reflexes, sphincter troubles, Babinski's sign, and an ulcer over the sacrum. The thenar and hypothenar muscles of the hands were wasted, but there was no definite change in sensation. He was also very apathetic. Trypanosomata were found in the blood on examination during a febrile attack. Despite the very grave view of the case which was naturally taken both the paraplegia and the mental troubles disappeared under treatment by injections of atoxyl.

An Original Form of Strike.

The governing body of the hospital at Mans having refused to grant a demand which had been put forward by the *internes*, these latter went on strike and refused to attend to the patients or to assist at surgical operations. So matters went on for three days when the governors retaliated by stopping all supplies to the *internes*.

A Disgrace to the Profession.

The correctional tribune of Bordeaux has just sentenced Dr. X. to eight months' imprisonment, 100 francs fine, and disability to practise for four years. He had given bogus certificates under the Workmen's Compensation Act and had also sent in a preposterous bill for medical attendance. A druggist, M. Z., was also sentenced to five months' imprisonment and 100 francs fine for having, with the connivance of Dr. X., sent in a bill for drugs and dressings which were quite needless.

Dental Anæsthesia by Psycho-narcosis.

At the June meeting of the Society of Hypnology and Physiology M. Paul Farez read a paper on this subject. He said that most of the methods for bringing about anæsthesia or analgesia in dental extraction were insufficient or even dangerous. In his opinion narcosis was the best method—as, for instance, by ethyl chloride. The drawbacks are the shortness of the period of anæsthesia and the rigidity of the jaws which the drug produces. But if suggestion be employed as if the patient were in a hypnotic sleep the period of unconsciousness is prolonged and the rigidity of the jaws disappears. M. Farez brought forward figures in support of his contention and described his technique.

August 25th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Medical Society.

AT a recent meeting Dr. Mendel reported the case of a woman, 30 years of age, who suffered from pains in the chest and in the back, formication in the legs, together with defective action of the bowels and of the bladder; the patellar reflexes were increased; walking and standing were impossible. The symptoms were especially marked on the right side. The spinal processes of the second to the seventh dorsal vertebræ were painful and Dr. Mendel suggested that the trouble was due to the presence of a growth in the spinal cord between the above vertebræ. An operation was accordingly performed by Dr. Adler, the result being that a circumscribed serous meningitis was discovered. The fluid was let out by an incision of the meninges and the patient made a quick recovery. The cord itself was healthy. The patient is now able to walk without the aid of a stick. Similar cases have been described by Professor Oppenheim and Professor Krause but they are very rare. At the same meeting Dr. Melchior reported some experiments on animals which he had made by inserting for plastic purposes pieces of veins into the ureter. In the dog six centimetres of the vena saphena had been inserted into one ureter and though the other kidney was removed normal urine was discharged. Three months later the dog was killed and it was found that only two centimetres space existed between the two ends of the ureter while the inserted piece of vein had become rigid. Hydronephrosis was, however, present and it must still be left doubtful whether the method is available for practical use in human beings. Dr. Sticker next read a paper on the Action of Atoxyl and Heterogenic Albuminates on Cancer. He alluded to the different methods in vogue of treating cancer, mentioning serotherapy, of which the results were hitherto not very encouraging, antifermentative therapy, where toxic symptoms may develop, heterofermentative therapy, and radiotherapy. Atoxyl, an antifermentative compound, is very poisonous and in medium doses makes the growths grow faster; very small doses are not poisonous and make the growths decrease, but they begin to increase when the administration of the compound has been stopped for some time and a blood count reveals a rather considerable leucocytosis. Concerning the administration of heterogenic albumin, especially that derived from blood, a method devised by Professor Bier, Dr. Sticker said that of all species of blood that of wethers proved especially efficacious. The injection of from 10 to 15 cubic centimetres of blood of wethers into the periphery of a cancer makes the growth shrivel and become livid and during the following days a regressive metamorphosis of the growth develops. This success is, however, only transitory, the growth increasing again and the general state of the patient becoming worse by the formation of hæmolysin. Dr. Sticker has accordingly tried to combine the administration of atoxyl and of serum and in this way has diminished the poisonous effects of the atoxyl, while the curative action of the serum was more lasting. In human beings the combined method has caused a marked improvement but no definite cure.

Lunacy in Campaigns.

At a recent meeting of the Army Medical Society Dr. Stier explained that lunacy occurs among the members of a fighting force in a relatively greater number of cases than previously. During the campaign in German South-West Africa progressive paralysis and alcoholic psychosis were especially observed. The consumption of spirits by the men should be prohibited. Also in the Russo-Japanese war the number of lunatics was relatively considerable. In a future war the following measures should be taken against lunacy: (1) the medical officers with the troops and the mobile field hospitals should be provided with hyoscine and trional to tranquillise the excited patients and to make them fit to be transported; (2) in the base hospitals a department for lunatics must be provided; (3) the patients should be conveyed home in specially adapted carriages of the hospital trains; and (4) at home sufficient places must be kept free in the lunatic asylums to receive soldiers returning from the theatre of war.

August 31st.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Hygiene of the Mouth in Primary Schools.

OUT of 50,000 pupils in the primary schools of Milan 47,000 are more or less the victims of buccal maladies—mainly affecting the teeth. These maladies are the coefficients, if not the immediate cause, of other and graver ones which crop up in adolescence. Other Italian centres are not more free from such disease, and so throughout the kingdom a systematic effort is being made on the lines of the provisions already taken *ad hoc* by the municipalities of Zürich, Charlottenburg, and Paris. The Milanese initiative, however, has features of its own which redound to the credit of that enterprising, prosperous, and progressive city. The "Associazione per la Scuola" (School Association), composed of representatives of the family and of the teaching profession, is acting in accord with the "Istituto Stomatologico Italiano" (Italian Institute of Stomatology), and both of them with the municipality, to make a periodical inspection of the primary schools beginning with the coming scholastic year 1908–09. This inspection is to be carried out by the "Commissione d'Igiene," presided over by Dr. Ambrogio Bertarelli and composed of Dr. Bordoni-Uffreduzzi, Dr. Clerici, and other eminent consultants and practitioners of the Lombard school. Under the auspices of this commission the inspection will be performed by the specialists attached to the Istituto Stomatologico who will communicate to the parents or guardians of the children concerned the "condizioni stomatologiche" of each, illustrated with appropriate diagrams. A small fee will be expected from the well-to-do families of the children inspected, while the service will be rendered gratuitously to those of humble means. At the end of the year the Associazione per la Scuola, in concert with the Istituto Stomatologico, will present to the municipality statistical tables of the cures effected and of the results obtained. The hearty response which all Milan has made to this initiative is of the best augury, and ought to stimulate the efforts of other centres to organise similar means of protecting their children from buccal maladies (including adenoids as well as carious teeth) so prevalent at that age in Italy.

The Population of Italy.

The "Direzione della Statistica" has issued its report on the population of Italy for the last statistical year, which (such is the slowness of Italian official methods) is not more recent than 1906. For the first six months of the 12 the population numbered 33,541,094, which indicates that the mean augmentation between the two last census returns has not been maintained, thanks to the emigration chiefly from the eight provinces of Mantua, Pavia, Macerata, Campobasso, Avellino, Salerno, Potenza, and Palermo, which have a population slightly inferior to that returned by the census of 1901. The marriages contracted in 1906 were 260,780, equal to 7·77 marriages for every 1000 inhabitants. In 1905 the proportion was 7·67 per 1000. The births in 1906 were 1,070,978, or 31·93 per 1000, while in 1905 they were in the proportion of 32·51. The deaths were 696,875, or 20·68 per 1000, as against 21·80 in 1905. By the changed conditions of emigration it is calculated that the mean augmentation of the population will return to its former proportions, in which case, towards the middle of 1911, the population will reach, in round numbers, 34,500,000.

A Bearded Girl.

The hospital at Padua has just received a girl, in her fourteenth year, possessed of a beard which many a young man might envy. The patient is a native of Forcal, near Vittorio, in the province of Venetia. She is a typical specimen of the robust mountaineer, with features strongly marked and suggestive of energy, with a deep chest and broad shoulders. At the age of 12 she began to grow a beard which in two years increased so rapidly that it is now several centimetres long and gives the poor girl the look of an adult male. An inmate of the skin wards (the "Clinica Dermosifilopatica") she is described as having a luxuriant head of hair and beard of dark chesnut colour without any sign of moustaches. Her parents are agricultural labourers, and she, with her six brothers, has already worked in the harvest field. Dr. Fausto Tessaro

regards her as one of those not uncommon cases in which a hirsute development accompanies certain anomalies of the generative organs.

August 29th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

The Physical Deterioration of the Bosnian and Herzegovinian Race.

THE experiences of Dr. Matosek, who spent several years in Bosnia and Herzegovina and had an opportunity to study the physical state of the people, seem to discredit the view that the progress of culture goes hand in hand with the physical deterioration of the race. He, as military surgeon, has attended the recruiting, thus having ample opportunity to study the youth of the country. The Bosnian people consists of Servian, Croatian, and Mahomedan people. The last are chiefly of Slav origin. The Bosnians have lived under very bad hygienic conditions. Infective diseases and tuberculosis have claimed many victims. The evil effects of alcoholism are also very noticeable, though not quite to the same extent as in years gone by. Out of every 100 recruits 62 have flattened skulls. This, it seems, is an artificial production, and is the outcome of the very tight dressing of the baby's head in the first months of life. The morbidity rate of the Bosnian soldiers is greater than that of the rest. Healing power is much worse and the mortality three times greater than with the rest of the soldiers. The number of those invalided from service is double that of regiments of other nationalities. Affections of the respiratory apparatus are twice as numerous, those of the digestive apparatus three times, and infective diseases six times as among the rest of the nationalities serving. There is a great disproportion between the stature and seemingly strong constitution and the low working capacity and poor resisting power against diseases. The Bosnian soldiers become prostrated in relatively slight diseases. The patients of the insanity department of the Vakuf Hospital in Sarajevo were in the last year affected with the following diseases: dementia paralytica (1·8 per cent.), paranoia (23 per cent.), secondary dementia (27 per cent.), melancholia (10 per cent.), mania (17 per cent.), alcoholic insanity (10·37 per cent.), and epileptic psychoses (5 per cent.). Among the Bosnians of the Vienna military hospitals there are about 51 per cent. hysterical or epileptical patients, an immense rate. The hysterical symptoms are very severe and often they occur epidemically. Other organic diseases and pains too frequently induce hysteria. Suicide is comparatively uncommon, the rate being 3·5 per 100,000, while in Germany the rate is 27·1 per 100,000, in France 18·7, and in Austria-Hungary 16·3. Among the Bosnian soldiers the percentage of suicide is 0·2 per cent., while it is 1·2 per cent. in the rest of the Austro-Hungarian army. Religious scruples are, in some respect, responsible for this low rate. Criminality is slight among the Bosnians. Out of 108 sentenced soldiers 35 had stolen something, the rest having offended against discipline. Dr. Matosek has sought for degenerative signs in 400 Bosnian soldiers. Apart from the lower portion of the auricle being deformed, which may be regarded as a racial property, three or more degenerative symptoms could be found in 16·5 per cent. of the cases. 7 per cent. of the men are left-handed. He concludes that the degeneration was of a greater degree here before civilisation set in, so it would be an exaggeration to say that culture as such is responsible, as a rule, for the physical deterioration of the races. Despite the great frequency of syphilis, psychoses and nervous diseases caused by syphilis are relatively very rare, perhaps because the disease is only 100 years old in the country.

Cancer of the Larynx; Laryngotomy; Relief of Symptoms.

Dr. Lenart recently exhibited a case to the Budapest Royal Medical Society with the following history. The patient, a man, aged 72 years, was admitted to his clinic on May 19th, 1905. He sought advice for hoarseness which had existed for eight years. The conditions found on examination were as follows. The right vocal cord was infiltrated, the surface was granulated, and the movements were limited. The surrounding parts were normal. Microscopical examination of an excised portion proved the presence of cancer. On these findings and on the clinical symptoms Dr. Lenart proposed to the patient a radical operation. On May 27th tracheotomy was performed. On June 8th an operation was performed with the application of Trendelenburg's cannula; incision of the skin in the middle line, free splitting of the thyroid cartilage and of the cricoid ligament, followed by the ligature of the cricoid artery; the larynx was opened from the wound with bone scissors. The application of adrenalin and cocaine was of service in stopping hæmorrhage, so giving a good view of the site of operation. Dr. Lenart successfully removed the diseased vocal cord. Afterwards the larynx and the soft parts were re-united, leaving a small opening. The patient was able to feed himself on the eighth day. In the fourth week the cannula was removed and the opening of the tracheotomy was united with a stitch. On the site of the removed cord there has formed what seems like an immoveable vocal cord. The patient, who is now 76 years of age, breathes freely; since the operation, performed three years ago, he has spoken with a tolerably good voice and has felt well in all respects.

A Case of Elephantiasis Penis et Præputii.

At the same meeting Dr. Steiner showed a patient, aged 48 years, who had acquired syphilis 27 years ago and had been treated with mercury inunctions. About one year ago his penis began to swell and then he smeared 100 grammes (about four ounces) of mercury ointment monthly on his penis for three months; under this ointment treatment the penis continually enlarged. The length of the penis in a relaxed state is 16 centimetres, the periphery being 15 centimetres; the skin is strikingly thickened and the prepuce cannot be pulled back. In the etiology of elephantiasis penis, said Dr. Steiner, chronic inflammations, recurring erysipelas, lymphangitis, tuberculosis, balanitis, and syphilis play the chief rôles. In this case the causal factors were on the one hand syphilis and on the other hand irritation produced by the application of the strong mercury ointment. The affection is rare even where elephantiasis occurs frequently. The prognosis is anything but favourable. In this case ablation of the prepuce and the cutting out of wedge-shaped flaps united with primary suture would be recommended.

August 28th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Emigrant Indians.

THE care that is taken to prevent outbreaks of disease on emigrant ships carrying Indian coolies to the colonies keeps the mortality on board at a very low figure. From an official report it appears that in 1907 only 54 persons died at sea, or less than 1 per cent. Measles was chiefly responsible for this mortality, and in spite of the precautions taken before embarkation it seems impossible to prevent occasional outbreaks of this disease. On the return voyages the deaths among coolies are much higher, but this is accounted for by the fact that the people on board include a large number of chronic invalids and even lepers. A certain proportion also are lunatics, but in future these persons are not to be shipped back to India owing to the difficulties of looking after them at sea. The Natal authorities, however, consider that any further influx of Asiatics is undesirable, and hence the stringent regulations that are now being carried through the Assembly.

Ambulance Work in the Merchant Service.

Officers of the Mercantile Marine can now obtain their first-aid certificates through the centres which have been established under the Indian branch of the St. John Ambulance Association at Bombay, Calcutta, Madras, Rangoon, and Karachi. The Board of Trade now requires these officers to hold these certificates. The Bombay centre has fixed the maximum fee for instruction and examination in first-aid at Rs.15. 13 officers were examined in Bombay very recently.

Instruction in Army Hygiene.

Courses of not less than four lectures on the prevention of disease are being delivered to regimental officers, non-commissioned officers, and men at all stations where British

units are quartered. The lecturers are Royal Army Medical Corps officers selected by divisional and brigade commanders and attendance is voluntary. Non-commissioned officers and men have attended in good numbers. These courses will in future be held annually. A small manual on the prevention of disease in the army has been issued for use in connexion with these lectures. Courses of instruction in the practical methods of sanitation of lines, barracks, and cantonments have also been instituted for young medical officers. For this purpose all the lieutenants of the Royal Army Medical Corps and Indian Medical Service on first arrival in the country are posted for one month to Rawal Pindi, Poona, Lucknow, or Bangalore, according to the command to which they belong. The instructors are nominated by the principal medical officer of His Majesty's forces in India, and the courses are carried out under the immediate supervision of the senior medical officer in consultation with the command or divisional sanitary officer.

Sanitary Supervision of Barracks.

Trial has been made in a few stations of training and employing a certain number of non-commissioned officers and men of each unit in the sanitary supervision of barracks, and regulations are about to be issued for this to be done in all British corps. Their duties will be carried out under the directions of the medical officer in charge of the lines and will consist in supervising within their lines water-supplies, the sale of food (except by regimental institutes), conservancy, disinfection, cleanliness, and sanitary policing generally. While so employed they will not be detailed for other duties. Classes of instruction will be held annually.

Bacteriological Laboratory at Muktesar.

The appointment of a physiological chemist for the bacteriological laboratory of the Indian Civil Department at Muktesar has been sanctioned. The officer will be selected at home.

Plague in the Punjab.

The report of the officiating Sanitary Commissioner in the Punjab for the year 1907 shows an average mortality from ordinary diseases combined with a mortality from plague which is without parallel in recent history. So numerous were the deaths from plague that the death-rate rose from nearly 37 per 1000 to slightly over 62, yet it is clear that apart from plague the registered death-rate was normal. These figures when analysed are found to present many remarkable points of interest. For instance, large towns suffered less than the small ones, and the plague mortality was highest in rural circles. There has been a decrease, from 51 per cent. in 1903 to 15 per cent. in 1907, in the preponderance, previously so remarkable, of deaths of females from plague; and while deaths from plague accounted for about half the deaths of persons of all ages they were responsible for only one-seventh of the infant mortality. To combat the plague Government took the usual measures, but the people are said not to have shown any willingness to avail themselves of inoculation or to practise evacuation on any considerable scale, though "they endured the epidemic with the splendid patience and fortitude which have characterised them in the past."

A Cheap Food.

The Government of Bombay is considering a suggestion by Commissioner Booth-Tucker to introduce tapioca as a cheap food. The Bhils of Khandesh have taken readily to the new food and are experimenting in growing it. The tuber is indifferent to heat (thriving best in open sunny situations) and will also withstand slight frost, so that broadly speaking it will exist anywhere in India up to an elevation of 4000 feet or so. It flourishes under a rainfall of 150 inches and at Poona it looks quite healthy with 25 inches. It is sown as a minor crop near their houses by the Nepalis and Lepchase in the Darjeeling district. It is also largely grown in Travancore and Malabar in the south. The average out-turn of the tubers per acre on the Manjri farm was 16,248 pounds. The percentage of starch to whole tubers varied from 16 to 25. These figures compare favourably with 13,440 pounds of tubers and 20 per cent. starch obtained in Jamaica. At Quilon and Alleppey, in Travancore, the chief centre of tapioca root trade, the root is sold in three different forms—viz.: (1) fresh whole tubers; (2) sliced and sun-dried tubers; and (3) sliced, boiled, and sun-dried tubers. In March last the following rates were obtaining at Alleppey: fresh whole tubers, 224 pounds per rupee; sliced and sun-dried tubers, 45 pounds per rupee; and sliced, boiled, and sun-dried tubers, 40 pounds per rupee. The large difference between the price of fresh tubers and that of sliced sun-dried tubers is mainly due to the former containing 66 per cent. of water.

August 6th.

Obituary.

THOMAS ORME DUDFIELD, M.D. ST. AND., M.R.C.S. ENG., L.R.C.P. LOND.,

MEDICAL OFFICER OF HEALTH OF THE ROYAL BOROUGH OF KENSINGTON.

Dr. Thomas Orme Dudfield, who died on July 30th, had for many years held a distinctly prominent position among sanitary administrators. During his long and busy professional life he was a careful observer of everything which concerned public health, and circumstances fortunately enabled him to turn his knowledge to practical account for the benefit of the community at large.

He was born on Jan. 23rd, 1833, his father being Mr. Samuel Dudfield, a veterinary surgeon in the city of Gloucester. His original intention was to follow in his father's footsteps, and after attending the usual course of instruction at a veterinary college in London in 1852–53 he settled in Cheltenham as a veterinary surgeon. In a few years, however, his plans were changed and he once more became a student in London, this time at St. George's Hospital, where his diligence and abilities gained for him various awards, including a prize of 20 guineas in each of the three sessions between 1858 and 1861. In 1860 he was anatomical prosector at the Royal College of Surgeons of England, receiving eventually from Mr. South, the President of the College, a letter of thanks for his satisfactory performance of the duties. In 1861 he graduated as M.D. at the University of St. Andrews and was admitted M.R.C.S. Eng. and L.R.C.P. Lond. In this year also he commenced practice in Kensington and obtained the appointment of visiting medical officer of the Poor-law infirmary of St. Margaret and St. John, Westminster, which at that time stood in Marloes-road, Kensington, but is now conducted on a different system in another part of London. Pauper nurses were in those days invariably employed in Poor-law institutions, but the unsuitability of the average pauper woman for such work was beginning to be recognised; Dr. Dudfield was an active supporter of the reformers who advocated the appointment of paid nurses exclusively and in a few years pauper nursing was a thing of the past. During his tenure of this appointment, which continued from 1861 to 1877, he was elected a member of the vestry of Kensington parish and served on the sanitary committee. In 1871 the vestry elected him as medical officer of health of the parish. His membership of the Association (afterwards the Incorporated Society) of Medical Officers of Health dated from 1871; in 1874 he was chosen one of the council; during the two sessions 1883–84 and 1884–85 he was President, his predecessor in the chair being the late Dr. J. W. Tripe, medical officer of health of Hackney. Reports of his two presidential addresses appeared in THE LANCET of Oct. 27th, 1883, and Nov. 1st, 1884; they were well-reasoned discourses dealing principally with the need of uniformity in the sanitary administration of London and were heartily approved by the members of the society. Dr. Dudfield was the representative of the society at the examinations of sanitary inspectors and was a vice-president at the time of his death. He was also a corresponding member of the Société d'Hygiène de France.

In connexion with his work as medical officer of health of an extensive area in the metropolis Dr. Dudfield wrote not only very detailed monthly and annual reports for 36 years but also many occasional reports and pamphlets. During the first 29 years that he was so engaged the London medical officers of health were officials of the local vestries—public bodies which were made sanitary authorities by the Metropolis Local Management Act of 1855, and continued to act as such until 1901, when their sanitary functions were taken over by the newly created borough councils. At the final meeting of the Kensington vestry, which was held on

Nov. 7th, 1900, he submitted an abstract of the vital statistics of the parish for the preceding 45 years and gave a brief account of the improvements in sanitary administration accomplished by the vestry since he entered its service in 1871. First among these came the question of notification and hospital treatment of infectious diseases. In 1871 and for some years afterwards a relieving officer's order was necessary for admission to the hospitals of the Asylums Board, so that (nominally at least) all the patients were paupers, and during the epidemics of small-pox in 1871 and afterwards some patients were deterred from entering the hospitals by the fear that the parish guardians would claim repayment of the hospital charges. At Dr. Dudfield's request the Kensington guardians refrained from making such claims, as well as from requiring a Poor-law medical officer to examine each patient before removal. In 1877 the question of the treatment of non-pauper patients in infectious hospitals arose. Dr. Dudfield's report on this subject deprecated the formation of local or district infectious hospitals, but recommended (1) a single hospital authority for London—the Asylums Board as a matter of convenience; (2) free admittance to the hospitals for all classes of the people; (3) depauperisation of medical relief in the hospitals; and (4) maintenance of the hospitals out of the Common Poor Fund created by the Metropolitan Poor Act, 1867. Writing in 1900, he reminded the vestry that "the views above set out, having received the approval of the vestry, were made the basis of efforts which never ceased until every principle contended for ..... had in successive Acts received the sanction of Parliament." Compulsory notification of infectious disease was recommended by him in his annual report for 1871 and efforts to procure voluntary notification were set on foot. During succeeding years he continued his representations on the subject until the vestry convened a conference which was held at the town-hall in March, 1881. In the following May a deputation waited on the President of the Local Government Board to submit the resolutions approved by the conference in favour of compulsory notification, and at this interview Dr. Dudfield recommended that small-pox patients should be removed from London to hospitals erected outside the metropolitan area. This suggestion was fully carried into effect by the Asylums Board in 1885, but compulsory notification was not introduced in London until 1889. Another of Dr. Dudfield's recommendations to the vestry had reference to the employment of female inspectors for visiting dressmakers' and milliners' establishments, laundries, and other places where the workpeople were mostly females. The idea was approved and in 1893 the vestry made a new departure in sanitary administrative work by appointing two female inspectors. The initiative of the Kensington vestry in this matter has been followed by numerous sanitary authorities in various parts of the country.

Dr. Dudfield was married in 1859; he has left a widow and family, his son, Dr. Reginald Dudfield, being medical officer of health of the borough of Paddington. The funeral service was held in the church of St. Mary Abbots, Kensington, on August 1st, and the interment took place in Brompton Cemetery.

THOMAS JONES EVANS, L.R.C.P. LOND., M.R.C.S. ENG.

THE death occurred on August 16th of Mr. Thomas Jones Evans at his residence Castle Green, Llansawel, Carmarthenshire, in his fiftieth year. Mr. Evans had practised for 28 years at Llansawel where he was very popular and highly esteemed. He held appointments under the Llandilofawr and the Llandovery boards of guardians. He had been in poor health for some time and had quite recently returned from a sea voyage, from which he had derived much benefit, and had resumed his professional work. He attended Llansawel Church on August 15th but on reaching home he had cerebral hæmorrhage and died on the following day. The funeral on August 21st was very largely attended; amongst those present were a considerable number of local medical men, Sir James Drummond, General Sir James Hills-Johnes, and many others.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Ignaz Hirsch, who has been bath physician at Teplitz for more than 40 years, aged 73.—Dr. George M. Edebohls, professor of gynæcology in the New York Post-Graduate Medical School and Hospital.—Dr. Loison, professor of military surgery in the Military Medical School, Paris.—Dr. B. Tomaszevski, *privat-docent* of psychiatry and neurology in the Military Medical Academy, St. Petersburg.—Dr. E. Menz, chief medical officer of the Assicurazioni Generali in Trieste.—Dr. J. Trapp, formerly professor of pharmacy in the St. Petersburg Military Medical Academy.—Dr. A. Ostrumoff, emeritus professor of medicine in the University of Moscow.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in August the following candidates passed in the subjects indicated:—

Surgery.—R. B. Dawson (Sections I. and II.), Guy's Hospital; G. F. C. Harvey (Sections I. and II.), London Hospital; J. J. S. Rowe (Sections I. and II.), Charing Cross Hospital; and H. B. Waller (Section I.), London Hospital.
Medicine.—R. B. Dawson (Sections I. and II.), Guy's Hospital; and G. F. C. Harvey (Section I.), London Hospital.
Forensic Medicine.—H. J. Clutterbuck, Middlesex; H. R. Coombes, Cambridge and Guy's Hospital; G. F. C. Harvey, London Hospital; G. W. Hassall, Birmingham; and S. H. Watton, Manchester.
Midwifery.—G. K. Aubrey, King's College Hospital; H. R. Coombes, Cambridge and Guy's Hospital; A. H. C. Dawes, Westminster Hospital; R. B. Dawson and A. C. Dickson, Guy's Hospital; H. A. Hancock, Cambridge and London Hospital; J. K. A. Helm; Guy's Hospital; and M. S. Jevons, Royal Free Hospital.

The Diploma of the Society was granted to the following candidate, entitling him to practise medicine, surgery, and midwifery:—J. K. A. Helm.

UNIVERSITY OF EDINBURGH.—The following is the official list of passes at the recent professional examinations for degrees in medicine and surgery:—

First Professional Examination.—John W. E. Adkins, William A. Alexander, James C. Anderson, Leslie L. Armstrong, Peter Baillie, Edwyn B. Barton, Francis J. H. Begg, Robert C. Begg, John H. Boag, Stuart Bolton, W. N. Gordon Boxer, James W. Bruce, Carl P. Carlsson, James F. Chalmers, Frederick C. Davidson, Alfred E. Delgado, Janet S. Doak, George A. C. Douglas, Richard Fawcitt, William R. Gardner, John J. Gilchrist, Robert Grant (M.A.), Arthur C. V. Green, Robert Hay, William J. G. Henderson, Thomas P. Herriot, Thomas H. Horrax, Thomas W. Jackson, David H. Jones (M.A.), Idwal W. Jones, Janet S. Laird, Christine Larsen, David P. Lindsay, Isabella M. Little, Frederick W. Mackenzie, James C. M'Kerrow (with distinction), Gertrude D. MacLaren, James S. M'Laren, Rosanna E. Macmillan, John Macqueen, Hamed Mahmud, Alexander W. Mather, James M. Matheson, Alexander Mearns, William Mitchell, Sarah O'Flynn, George F. B. Page (with distinction), Lennox J. D. Pawan, Wilfrid W. Phillips, Arthur C. Price, Edwin D. Pullon (with distinction), Aubrey Radford, Graham C. Ramsay, Augustus C. Renton, Andrew A. Rutherford (B.A., LL.D.), Eastlyn R. Ryner, Dorothy M. Scott, Edward Sharpe, Herbert W. Smith, R. Wayland Smith (with distinction), Sydney A. Smith, Jack E. Snodgrass, William Stewart, Fearnley Thompson, Robert Thomson, Conyngham V. Thornton, William G. Thwaytes, Herman F. Rogers-Tillstone, Charles J. Tisdall, George D. E. Tullis, Gideon Walker, Roy W. W. Walsh, Clement S. Wills, Peter C. Woudberg, and Hubert T. Young.
Second Professional Examination (Old Regulations—Regulations Prior to 1892).—Charles Richardson White.
Second Professional Examination (Old Regulations—Anatomy, Physiology, and Materia Medica).—Edward Anderson, George J. Carr (B.A.), Frederick O. Clarke, Thomas F. Craig, Jemima B. Dickie, Wm. A. Dunn, John M. Elliot, Arthur C. England, Alastair G. Forbes, Matthew E. Goode, Annie C. Greenep, David S. Harvey, Samuel Hodkinson, Dirk van V. Hoffman, Nicholas J. Hofmeyer (B.A.), Gaspard de C. Hugo, Arthur J. G. Hunter, James S. P. Knight, Joseph J. Levin, Robert M'Adoo, Hugh J. M'Caw, John D. M'Ewen (M.A.), John T. Mackenzie, Elizabeth Macleod, George V. T. M'Michael, Angus B. Robertson, Henry C. Robbins, Lizzie Rose, Charlotte D. Schaeffer, K. R. Shah, D. R. Bedell Sivright (B.A.), Norman W. Stevens, George H. Stevenson, and J. D. Grahame Stewart.
Second Professional Examination (New Regulations—Anatomy and Physiology).—Oliver H. Blacklay, James C. Brash (M.A., B.Sc.) (with distinction), A. Gardner Brown, Lawrence D. Callander, Walter D. Chambers, Andrew Cochrane, Josias Daneel, Matthew R. Drennan (M.A.), John M. Drew (B.A.), James Erlank, Alexander Galletly, Robert Govan (M.A.), John D. Gunn, Charles A. Keegan, Jal C. J. Khambatta, William D. Kirkwood, Richard C. Lowther, Duncan J. M'Afee, George Macdonald, Keith B. MacGlashan, Marion Macintyre, John M. Mackinnon, William P. Murray, Leopold T. Poole, Koka Ahobala Rao, Morton W. Ruthven, Thomas M'Call Sellar, John W. Senter, Daisy L. Shawyer (B.A.), John C. Smith (M.A.), Dirk L. Theron, Roland Thorp, Harry C. Todd, James A. Tomb, Frederick L. Tulloch, Robert C. Wallace, Arthur M. Warwick, Frank H. C. Watson, and William L. Webster.
Third Professional Examination.—James R. Adam, Thomas A. Adams, Janet Armstrong, Charles A. Bignold, Walter Bisset (M.A., B.Sc.), Andrew Campbell, Joseph A. H. Carter, Peter Chalmers, Ralph B. Chamberlain, John P. Charnock, Bodh Raj Chopra, William F. Christie, Gladys H. Cook, Gerald M Coughtrey, Godfrey

C. Dalton, Richard B. Davidson, James Davie, William N. Davies, Francis A. Duffield, James Eaves, Herbert G. Feltham, John B. Ferguson, Graham H. Garnett, Colin Grant, Thomas E. Guthrie, Robert W. Hauman, John B. Haycraft, William C. Jardine, Archibald M. Jones, John H. Jones, Janet Leiper, Leonard Leslie, Mary Low (M.A.), William H. Lowe, Alfred J. M'Connell, William Macdonald, Ronald B. Macfie, James Mackail (M.A.), Duncan Mackinnon, Mary Macmillan, Andrew J. Macvie, Charles G. Marais, William A. Miller, Rhoda M. Murdoch, William J. Nisbet, James E. R. Orchard, Johannes A. Pienaar, Jacobus P. du Plessis, Ella F. Pringle, John M. Scott, Matthew B. Smith (B.Sc.), Thomas C. Smith, Robert H. Tait, Leonard W. Owen-Taylor, William A. Todd, Allan Watson, and Tom Welsh.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Carl Helbing, Assistant in the Orthopædic Institute, has been granted the title of Professor.—*Bologna:* Dr. Odorico Viana has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Breslau:* Dr. Hermann Coenen, who was for many years Assistant in the Berlin Surgical Clinic under the late Professor von Bergmann, has been recognised as *privat-docent* of Surgery.—*Budapest:* Dr. Wilhelm Manniger has been recognised as *privat-docent* of Surgical Diagnosis; Dr. Tibor Verebely as *privat-docent* of Infectious and Surgical Diseases; Dr. Heinrich Benedict as *privat-docent* of the Pathology and Therapeutics of Constitutional Diseases; Dr. Karl Borsseky as *privat-docent* of Operative Surgery; Dr. Desider Raskai as *privat-docent* of the Clinical Diagnosis of Diseases of the Urinary and Sexual Organs; Dr. Emmanuel Wein as *privat-docent* of Surgery; and Dr. Franz Torday as *privat-docent* of Pædiatry, with special reference to the Pathology and Therapeutics of Infants at the Breast.—*Greifswald:* Dr. Joseph Forschbach has been recognised as *privat-docent* of Medicine.—*Heidelberg:* Dr. Otto Ranke has been recognised as *privat-docent* of Neurology and Psychiatry.—*Kharkoff:* Dr. J. G. Orkhanski, Extraordinary Professor of Neurology and Mental Diseases, has been promoted to an Ordinary Professorship.—*Leipsic:* Dr. Florus Lichtenstein has been recognised as *privat-docent* of Midwifery and Gynæcology.—*New York (Cornell University):* Dr. Andrew Hunter of Leeds has been appointed Assistant Professor of Physiology.—*Vienna:* Dr. Robert Dovr has been recognised as *privat-docent* of General and Experimental Pathology.

INDIAN HOSPITALS AND DISPENSARIES.—The triennial report on the civil hospitals and dispensaries of the Bombay Presidency for the years 1905–07, which has recently been issued, is devoted almost entirely to statistics but the information, so far as it goes, is of a satisfactory nature. The number of patients is steadily increasing but the mortality among them has decreased. Generally speaking, the equipment leaves much to be desired but as the Government has granted substantial sums for extension and maintenance there is a good prospect of improvement in this respect. To the layman, says a writer in the *Times of India*, one of the most interesting features in the report is the statement of cases of snake-bite treated by Sir Lauder Brunton's method. In 1906 there were 19 of these cases, of whom 15 recovered and 4 died. In 1907 there were 13 cases of whom 3 died. "Looking to the general result," says Colonel J. McCloghry, I.M.S., acting Surgeon-General with the Government of Bombay, "the treatment appears to be successful, but at this stage, with such a small number under observation, I am not in a position to express a definite opinion thereon, especially as the snakes were not secured for identification." According to the *Pioneer Mail* of August 7th the last triennial report on the working of the charitable dispensaries in Bengal amply proves that comprehensive reforms and far-reaching improvements have been effected between 1905 and 1907 in the chief medical institutions in Calcutta. In respect of buildings, furniture, surgical instruments, and other matters tending towards efficiency, such establishments as the Presidency General Hospital, the Medical College Hospital, and the Campbell Hospital have been completely re-equipped at a considerable cost, the generous contributors including H.R.H. the Prince of Wales, in addition to numerous local benefactors. With regard to the arrangements for nursing in Calcutta, there is still, it appears, much room for improvement, but as the matter is at present under the consideration of the Lieutenant-Governor there is reason to hope that it will soon be forthcoming. The average yearly number of indoor patients treated in the Calcutta hospitals during the triennium was 28,231, against 27,598 and 26,169, the averages of the two preceding periods of three years. Last year the collective income from all sources was Rs.18,40,103, or about £120,000. In consequence of the partition of Bengal 299 dispensaries were transferred to the new Province of Eastern Bengal with Assam. In the course of the triennium 41 new dispensaries were opened and five of the existing ones were closed. On the whole, the financial position of the dispensaries is said to be satisfactory. The fact that liberal contributions are in most cases received from local authorities testifies that an increasing interest in these establishments is taken by municipalities and district boards.

THE FOURTH INTERNATIONAL CONGRESS ON ELECTROLOGY AND RADIOLOGY.—We may again remind our readers that the Fourth International Congress on Electrology and Radiology will be held at Amsterdam from Sept. 1st to 5th, under the presidency of Dr. J. K. A. Wertheim Salomonson. The results of the three former congresses, at Paris in 1900, at Berlin in 1903, and at Milan in 1905, have proved their utility and importance, and the fourth congress will be organised on the same lines, the programme comprising all questions of electro-pathology, radiology, and electro-therapeutics. In conjunction with the congress an exhibition will be arranged of new or modified apparatus used in clinical and laboratory work, and also a collection of interesting radiographs. Communications with regard to the exhibition can be addressed to M. Vogelpoel and M. Noorweegen, O.Z. Voorburgwal 151, Amsterdam, who will act as agents. The congress and the exhibition will be held in the University, and the general secretaries and treasurers are Dr. J. G. Gohl and Dr. F. S. Meijers, who may be addressed at Vondelstraat 53, Amsterdam.

DONATIONS AND BEQUESTS.—The *Times* states that it is reported that Mr. Hugh Lewis, formerly of Tipton, has left the whole of his estate, valued at about £50,000, to the Guest Hospital, Dudley.—The late Mr. Openshaw, a native of Bury, has among other bequests, left the following sums for charitable purposes: £1000 to the Southport Infirmary, £250 to the National Society for the Prevention of Cruelty to Children, and £250 to the Manchester Royal Infirmary and Dispensary.—Dr. William Walter, who died at Rusholme Hall, Manchester, on March 17th, directed that, after the payment of a number of legacies and on the determination of various life interests in his property provided for in his will that property should be used for the endowment of a research scholarship for the study of the diseases of women and obstetrics at St. Mary's Hospital, in connexion with the University of Manchester. It is estimated that the bequest will amount to between £12,000 and £13,000.—Miss L. Tugwell, of Torquay, has bequeathed £500 to the Royal United Hospital, Bath.—The late Mr. C. W. Jones has bequeathed £1500 to the Carmarthen Infirmary and an additional £500 provided that the committee erects a children's ward at a cost of £750 and names it after the deceased.—The Chinese residents of Cardiff have given £20 to the funds of the Cardiff Infirmary.

MEDICAL MEN AND THE PUBLIC EYE.—The question of a medical man's fee came before the Hastings county court recently as a sequel to an operation performed upon a girl, aged 16 years, at Bexhill in June, 1907. The plaintiff was Mr. Robert Stuart Reid who had been called in as consultant and who performed the operation for which he charged 50 guineas. The defendant was the father of the girl, Mr. John Greed, builder, and a member of the Bexhill town council, and he held that the amount was excessive and offered £25 in settlement. His honour Judge Scully, in giving his reserved judgment, said that the suggestion that the defendant's pecuniary position must be taken into consideration in fixing the fee was not a proper element to consider. The position that the plaintiff held in the public eye at Bexhill was as a general practitioner, and his honour said he could not hold that the plaintiff was entitled to remuneration as a specialist. He thought 30 guineas a reasonable and sufficient fee for the operation, and as 20 guineas had already been paid judgment was given for the plaintiff for 10 guineas and costs on that amount. His honour said that he appreciated that the operation was a difficult and a serious one and that the plaintiff exercised all proper and reasonable care in its performance. Evidence of witnesses, he added, showed that the girl's death was not in

any way attributable to the operation but to a cause entirely unconnected with it.

A SHROPSHIRE CENTENARIAN.—Mrs. S. Hughes, of Oswestry (Salop), has recently completed her 102nd year.

IT is suggested by the Weymouth board of guardians that the coastguard stations on the Dorset coast which have recently been closed should be used as sanatoriums for consumptive patients.

Mr. Roderick Simms, who had a practice in the south of France but who was acting as locum-tenent for Mr. H. J. Holman at Eastbourne, died suddenly while attempting to enter a motor-car at Eastbourne railway station on August 11th. At the inquest on the following day it was stated that the deceased had been in extremely delicate health and was unable to winter in England. Death was attributed to heart failure, and a verdict of "Death from natural causes" was returned. The deceased was 41 years of age.

AT the meeting of the West Sussex education committee on August 12th, Mr. Stanley Child, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., was elected medical officer at the salary of £350 per annum and out-of-pocket expenses. There were 78 applicants for the post, of whom no fewer than 12 were ladies. To one of the lady applicants the staff subcommittee wrote stating that it had come to the conclusion that the work would be too arduous for her, for which reason she had not been selected for an interview.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, London, W.C.

Operative Midwifery. By J. M. Munro Kerr, M.B., C.M. Glasg., Fellow of the Faculty of Physicians and Surgeons, Glasgow; Obstetric Physician, Glasgow Maternity Hospital; Gynæcologist, Western Infirmary; President of the Glasgow Obstetrical and Gynæcological Society; late Assistant to the Regius Professor of Midwifery, Glasgow University. Price 21s. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, 83–91, Great Titchfield-street, Oxford-street, London, W.

Venoms, Venomous Animals, and Antivenomous Serum-Therapeutics. By A. Calmette, M.D., Corresponding Member of the French Institute and of the Academy of Medicine; Director of the Pasteur Institute, Lille. Translated by Ernest E. Austen, F.Z.S. Price 15s. net.

Sprue and its Treatment. By W. Carnegie Brown, M.D., M.R.C.P. Price 6s. net.

FROWDE, HENRY, AND HODDER AND STOUGHTON, 20, Warwick-square, London, E.C.

The Oxford Medical Publications. A System of Medicine. By Eminent Authorities in Great Britain, the United States, and the Continent. Edited by William Osler, M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in the Johns Hopkins University, Baltimore; assisted by Thomas McCrae, M.D., F.R.C.P. Lond., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Volume IV.: Diseases of the Circulatory System; Diseases of the Blood; Diseases of the Spleen, Thymus, and Lymph-glands. Price 30s. per single copy, or 24s. each net per set of seven volumes.

GREEN, WILLIAM, AND SONS, Edinburgh.

Recidivism: Habitual Criminality, and Habitual Petty Delinquency. A Problem in Sociology, Psycho-Pathology and Criminology. By J. F. Sutherland, M.D. Edin., F.R.S.E., F.S.S., Deputy Commissioner in Lunacy for Scotland; late Member and Secretary of Departmental Committee on Habitual Offenders, Inebriates, Vagrants, and Juvenile Delinquents; late Medical Officer and Consulting Medical Officer, H.M. Prisons, Glasgow and Barlinnie. Price 3s. net.

LEWIS, H. K., 136, Gower-street, London, W.C.

Clinical Bacteriology and Hæmatology for Practitioners. By W. D'Este Emery, M.D., B.Sc. Lond., Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington-green. Third edition. Price 7s. 6d. net.

Landmarkings and Surface Markings of the Human Body. By Louis Bathe Rawling, M.B., B.C. Cant., F.R.C.S. Eng., Assistant Surgeon, Demonstrator of Practical and Operative Surgery, late Senior Demonstrator of Anatomy at St. Bartholomew's Hospital. Third edition. Price 5s. net.

The Sexual Disabilities of Man and Their Treatment. By Arthur Cooper, Consulting Surgeon to the Westminster General Dispensary; formerly House Surgeon to the Male Lock Hospital, London. Price 4s. net.

LIVINGSTONE, E. AND S., 15, Teviot-place, Edinburgh.

Poisoning by Arseniuretted Hydrogen or Hydrogen Arsenide. With a Record of 120 Cases by Different Observers. By John Glaister, M.D. Glasg., F.F.P. & S. Glasg., L.R.C.P., L.R.C.S. Edin., D.P.H. Camb., F.R.S.E., F.C.S., Examiner in Forensic Medicine and Public Health for Diplomas in Medicine and Surgery and for Diplomas in Public Health of the Scottish Triple Colleges. Price 5s. net.

NEW AGE PRESS, THE, 140, Fleet-street, London, E.C.

The Endowment of Motherhood. By Dr. M. D. Eder. Price 1s. net.

PATON, J. AND J., 143, Cannon-street, London, E.C.

Paton's List of Schools and Tutors. (An Aid to Parents in the Selection of Schools.) Eleventh Annual Edition, 1908–1909. Price 1s. 6d.

REBMAN, LIMITED, 129, Shaftesbury-avenue, London, W.C.

Ophthalmic Surgery. A Handbook of the Surgical Operations on the Eyeball and its Appendages as Practised at the Clinic of Prof. Hofrat Fuchs. By Dr. Josef Meller, Privat-docent and First Assistant K.K. II., University Eye Clinic, Vienna. The Translation reviewed by Walter L. Pyle, A.M., M.D., Member of the American Ophthalmological Society, Ophthalmologist to Mount Sinai Hospital, sometime Assistant Surgeon to Wills Eye Hospital, Philadelphia, &c. Price 12s. 6d. net.

Death and its Verification. By J. Brindley James, L.R.C.P. Irel., M.R.C.S. Eng., A.K.C. Lond., Examining Physician-in-Chief to, and Vice-President of, the Association for the Prevention of Premature Burial. Price 1s. net.

SPON, E. AND F. N., LIMITED, 57, Haymarket, London. SPON AND CHAMBERLAIN, 123, Liberty-street, New York.

Public Abattoirs, their Planning, Design, and Equipment. By R. Stephen Ayling, F.R.I.B.A., Royal Academy Medallist, Godwin Bursar, Royal Institute of British Architects, &c. Price 8s. 6d. net.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Cholécysto-Pancréatite. Essai de Pathogénie. Par le Docteur Reine Maugeret, Ancien Interne des Hôpitaux de Paris. Price not stated.

SUPERINTENDENT OF GOVERNMENT PRINTING, India, Calcutta.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India.

No. 32. An Enquiry on Enteric Fever in India. Carried out at the Central Research Institute, Kasauli, under the Direction of Lieutenant-Colonel D. Semple, M.D., Director of the Institute, and Captain E. D. W. Greig, M.D. Price Re. 1 annas 2, or 1s. 2d.

No. 33. The Production of Alkali in Liquid Media by the Bacillus Pestis. By Lieutenant-Colonel W. B. Bannerman, M.D., B.Sc., I.M.S. Price 5 annas, or 6d.

No. 34. Standards of the Constituents of the Urine and Blood and the Bearing of the Metabolism of Bengalis on the Problems of Nutrition. By Captain D. McCay, M.B., B.Ch., B.A.O., I.M.S., Professor of Physiology, Medical College, Calcutta. Price 12 annas, or 1s. 2d.

WALKER AND GREIG, Lindula.

First Aid to Medical Treatment of Tamils and Singhalese for the Use of Tea and Rubber Planters and Estate Dispensers. By R. J. Drummond, M.D. Edin. Univ. Price not stated.

UNIVERSITY PRESS, Cambridge.

Linacre Lecture, 1908, St. John's College, Cambridge. Thomas Linacre. By William Osler, M.D., F.R.S., Regius Professor of Medicine in the University of Oxford. Price 2s. 6d. net.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Prof. Dr. Wilhelm Czermak. Die Augenärtzlichen Operationen. Zweite, vermehrte Auflage. Herausgegeben von Dr. Anton Elschnig, K.K.O.O. Universitätsprofessor und Vorstand der Deutschen Universitäts-Augenklinik in Prag. II. Band. Price M.25.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BUIST, JAMES JOSEPH, M.B. Lond., L.S.A., has been appointed Public Vaccinator for Cardiff.

COUTTS, FRANCIS JAMES HENDERSON, M.D., B.Sc., D.P.H. Manch., has been appointed an Inspector of Foods on the Medical Staff of the Local Government Board.

DUNLOP, J. B., M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the Bradford Post Office.

GREEN, THOMAS ARTHUR, M.D., C.M. Edin., F.R.C.S. Edin., has been appointed Medical Inspector by the Bristol Education Committee.

GREY, H. MARTIN, M.R.C.S., L.R.C.P., has been appointed Assistant Resident Medical Officer to the Royal Albert Hospital, Devonport.

GRIFFIN, W., M.D., has been appointed District Medical Officer by the Tavistock (Devon) Board of Guardians.

GUNN, A. R., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ullapool District of the county of Ross and Cromarty.

HARVEY, FRANK, M.R.C.S., L.S.A., has been appointed Medical Officer for the No. 1 District by the St. Columb (Cornwall) Board of Guardians.

JACKSON, F. D. S., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist at the Evelina Hospital for Sick Children, Southwark, London, S.E.

JONES, DAVID RHYS, L.F.P.S. Glasg., L.S.A., has been appointed Public Vaccinator for the Grangetown District of the Cardiff Union.

JUPP, E. A., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Chard District of the county of Somerset.

KRUMBHOLZ, C. J. I., M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Rugby District of the county of Warwick.

MACDIARMID, JOHN, M.B., Ch.B. Edin., has been appointed House Surgeon at the City and County of Perth Royal Infirmary.

MITCHELL, JOHN C., M.B., C.M. Edin., has been appointed Government Bacteriologist to the Transvaal.

NUTTALL, T. E., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Accrington District of the county of Lancaster.

WORMALD, T. L., M.B., B.S. Durh., has been appointed Resident Medical Officer at the Workhouse Hospital, Newcastle-on-Tyne.

WYNDHAM, T. L., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Oughtibridge District of the county of York.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH EYE INFIRMARY.—Honorary Surgeon.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with lodging and board.

BEDFORD COUNTY HOSPITAL.—House Physician. Salary £60 per annum, with apartments, board, and laundry.

BLACKPOOL, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £500 per annum, rising to £600.

BRIGHTON, HOVE, AND PRESTON DISPENSARY.—House Surgeon. Salary £160, with rooms, coals, gas, and attendance.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BURNLEY COUNTY BOROUGH,—Assistant Medical Officer of Health. Salary £200 per annum.

BURY DISPENSARY HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board, residence, and attendance.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum, with board and residence.

CHARTHAM, KENT COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140 per annum, with board, quarters, attendance, and washing.

CHESHIRE, NEW CROSSLEY SANATORIUM, Delamere Forest.—Assistant Medical Officer. Salary £100 per annum, with board, apartments, and laundry.

CITY OF LONDON LYING-IN HOSPITAL, City-road, E.C.—Resident Medical Officer for four or six months. Salary at rate of £50 per annum, with board, lodging, and washing.

DUDLEY, THE GUEST HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with residence, board, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry. Also Medical Officer to the Casualty Department for six months, renewable. Salary at rate of £100 per annum, with luncheon and tea. Also Assistant Physician.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Physician, unmarried. Salary £60 per annum, with board, lodging, and washing.

GLOUCESTER GENERAL INFIRMARY AND THE GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway.—Resident Medical Officer. Salary £120 per annum, with board, lodging, and washing. Also Senior House Surgeon, Senior House Physician, Junior House Physician, and Two Junior House Surgeons, in each case for six months. Salary of senior officers at rate of £45 per annum and of the junior officers £35 per annum, with board, lodging, and washing.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon. Salary £120 per annum.

IPSWICH AND EAST SUFFOLK HOSPITAL.—House Surgeon for six months. Salary at rate of £65 per annum.

JARROW EDUCATION COMMITTEE.—School Medical Officer. Salary £200 per annum, increasing to £250.

KESTEVEN EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum and £100 for travelling expenses.

LEICESTER INFIRMARY.—Assistant House Surgeon; also Assistant House Physician, both for six months. Salaries at rate of £60 per annum, with board, lodging, and washing.

LEYSIN, SWITZERLAND, ENGLISH SANATORIUM.—Assistant Medical Officer, unmarried. Salary at rate of £72 per annum for first six months, afterwards at £96, with board and lodging.

LIVERPOOL ROYAL INFIRMARY.—Honorary Assistant Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer and Assistant Resident Medical Officer. Salary of former £120 per annum and of latter £52 10s. per annum, with board and residence. Also Non-resident Assistant House Surgeon for six months. Salary at rate of £75 per annum.

MANDALAY MUNICIPALITY.—Health Officer. Salary Rs.600 (£40) per mensem.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Resident Anæsthetist. Salary at rate of £80 per annum. Also House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, all for six months. Salary of two former at rate of £40 per annum, and of two latter at £20 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead.—Junior Resident Medical Officer. Salary £50 per annum, with board and residence.

NEWCASTLE-ON-TYNE, HOSPITAL FOR SICK CHILDREN.—Honorary Assistant Surgeon.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with apartments, board, and laundry.

NOTTINGHAM CITY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and washing.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Junior House Surgeon, unmarried. Salary at rate of £40 per annum, with board, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months, renewable. Salary £75 per annum, with board, residence, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Senior House Surgeon. Salary at rate of £100 per annum, with board and residence.

ROYAL NAVY, MEDICAL DEPARTMENT.—Fifteen Commissions.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo-road, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing. Also Senior Resident Medical Officer. Salary at rate of £70 per annum, with board and washing.

ST. JOHN'S WOOD AND PORTLAND TOWN DISPENSARY.—Third Medical Officer.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOUTHAMPTON FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months, renewable. Salary at rate of £70 per annum, with residence, board, and washing.

SOUTHWARK INFIRMARY, East Dulwich Grove, S.E.—Assistant Medical Officer. Salary £100 per annum, with board, lodging, and washing.

STOCKPORT EDUCATION COMMITTEE.—School Medical Officer. Salary £250, increasing to £300 per annum.

TEIGNMOUTH HOSPITAL, SOUTH DEVON.—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

TOROSAY, PARISH OF.—Medical Officer. Salary £100 per annum.

WORCESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

WREXHAM INFIRMARY.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Hatherleigh, in the county of Devon.

Births, Marriages, and Deaths.

BIRTHS.

VAUGHAN-SAWYER.—On Monday, August 31st, at 131, Harley-street, to Captain H. Vaughan-Sawyer, 23rd Sikh Pioneers, Indian Army, and Dr. Ethel Vaughan-Sawyer, M.D., B.S. Lond., a daughter.

WHITAKER.—On August 30th, at The Cottage, Diss, Norfolk, the wife of Edgar Whitaker, M.R.C.S., L.R.C.P. Lond., of a son.

MARRIAGES.

GODSON—EVANS.—On August 26th, at Bowdon parish church, Francis Arthur Godson, M.B., B.C. Cantab., Pinehurst, Didsbury, to Alice Frances, elder daughter of Thomas Evans, Bowdon.

TURNER—SCHOFIELD.—On August 27th, at St. George's Church, Morpeth, by the Rev. A. H. Drysdale, D.D., George Grey Turner, F.R.C.S. Eng., of Newcastle-upon-Tyne, to Alice Grey Schofield, B.Sc., second daughter of F. E. Schofield, of Morpeth.

DEATHS.

FOSTER.—On August 19th, at Fullarton House, Watton, Norfolk, Henry George Foster, L.R.C.S. Edin., L.S.A., late of Attleborough, Norfolk, aged 65 years.

LIGHTFOOT.—On August 27th, at Hove, Robert Twentyman Lightfoot, L.R.C.S. Edin., L.S.A., late of Newcastle-on-Tyne, in his 94th year.

SWINDELL.—On August 29th, at Wynberg, Madeira-avenue, Worthing, John James Swindell, M.R.C.S.E., late of Fairfield, North Finchley, aged 62.

WELCH.—On August 26th, Walter Barrows Welch, M.R.C.S., L.S.A., of Stanford-avenue, Brighton, aged 44 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

PRAYERS FOR THE SICK.

UNDER this title a correspondent of the *Halifax Courier*, writing above the initials "J. W. S.," has suggested that when prayers are asked in a place of worship for sick persons there should be rendered to those sick persons or their friends the aid of a medical consultation as well as the spiritual assistance which is sought. His suggestion is that the minister should "have the privilege, as an act of grace, to ask or to offer to send any physician or doctor in his congregation to go and see the sick person and consult with the medical attendant to find out if some other means of remedy cannot be tried to restore health." He also adds the suggestion that "there should be a town's physician of advice for the medical officers of health in towns to apply for advice in dangerous cases amongst the poor, and for such visit or advice to be free or the fee quite optional." We fear that his first proposal is not exactly practical and the intervention of the minister, however well meant, can only lead to confusion. The patient, the friends of the patient, and the medical man in attendance upon the patient might all have reasons for desiring a particular consultant and they could obtain his services directly. On the other hand, there might be no reason whatever for inviting the opinion of any one of the medical men forming a regular part of the minister's congregation. We do not quite understand what "J. W. S." means by his second proposal; it is very obscurely worded, and we think that he is not quite clear in his mind as to what a medical officer of health may be. A community could not support and pay a consulting physician for reasons that will be apparent to anyone who knows anything of the proper relations between medical men and the public.

THE FIRST MEDICAL BOOK PUBLISHED.

To the Editor of THE LANCET.

SIR,—In THE LANCET of August 22nd, p. 596, in "Notes, Short Comments, and Answers to Correspondents," referring to "An Adaptable Remedy and a Famous Quack," Mr. R. S. Wilkinson believes the "Compleat Practise of Physick," 1655, to be the first medical book published in English. I have in my possession, and in English, a well-preserved edition of—

> "The Breuvary of Health, named the Extravagantes followeth compyled by Andrewe Boorde of Physicke doctor.
>
> Examined in Oxford in June the yere of our Lord MCCCCCXLVI. and in the reigne of our souerayne Lorde Kynge Henry the viij., King of Englande, Fraunce, and Irelande, the xxxviij. yere. And newly Imprinted & Corrected the yere of our Lorde God MCCCCCLII.
>
> Imprinted at London in Flete Strete at the signe of the George next to Saynt Dunstone's Church by Willyam Powell. In the yere of our Lord God MDLII."

I have a rather dim recollection of an Andrewe Boorde, M.D., as mentioned by one of the commentators on Shakespeare. I have a further idea of having once read that an itinerant quack of the name of Andrewe Boorde was the original merry Andrew. It would be interesting if any of your readers could throw light on curious old matters of this kind. I am, Sir, yours faithfully,

Worthing, August 24th, 1908. WILLIAM KELLY, M.R.C.S. Eng.

P.S.—It would be interesting to know if there is in existence an earlier medical book published in English than this one of Andrewe Boorde printed in 1552.

PUBLIC HEALTH AND SANITATION IN WEI-HAI-WEI.

Mr. J. H. Stewart Lockhart, C.M.G., in his annual report on this territory—which, it will be remembered, was leased to Great Britain by China by a convention made in July, 1898—mentions that there has been remarkable freedom from disease during the past year. No cases of small-pox were reported. The Chinese inhabitants are fully alive to the advantages of vaccination, which has been systematically carried out. The number of vaccinations performed were 3737 on the mainland and 128 on the island, as compared with 3064 on the mainland and 223 on the island in 1906. There was little dysentery at any time during the year. Although no enteric fever could be traced locally there were two cases among the summer visitors. One of these was certainly imported from Shanghai; the origin of the other was more obscure but it seems probable that in this case also infection was introduced from outside the territory. Three cases of beri-beri occurred among the Japanese in connexion with a single building; the house and soil have been thoroughly disinfected and it is hoped that there will be no recurrence of the disease. The sanitary condition of Port Edward and the island is good. A new dairy erected on the mainland has been well kept and has supplied milk of a good quality. In the civil hospitals the in-patients treated during the year on the island numbered 35 and at Port Edward 120. There were on the island 2520 out-patients and at Port Edward 2306; these figures show a very satisfactory increase, the number of admissions at Port Edward being nearly three times as many as in the previous year. The behaviour and health of prisoners in the gaol were excellent. It has been found that the cure during imprisonment of any but the most confirmed opium smokers has been effected by depriving the smoker entirely of the drug at the cost to him of not more than a week or ten days of diarrhœa and malaise. Cases of suicide in Wei-hai-wei have been comparatively numerous. By far the greater number occur among women, the motive in many cases being trivial in the extreme. The frequency of suicide appears to be due partly to the fact that the idea of death in itself does not seem to act as a deterrent, and partly to the fact that the taking one's own life is apparently not regarded as disgraceful or as implying any moral obliquity. The district officer reports that so far as his experience goes the only occasions on which an act of suicide is condemned by the general voice of the community are when a young married woman destroys herself before she has presented her husband with a son or while she is still nursing an infant. The meteorological return for 1907 shows that the highest monthly barometrical average was for December, 30·209 inches, and the lowest for August, 29·624 inches, the average monthly range being 0·546 inch. The highest temperature was 92° F., recorded in June and August, and the lowest 7° F., in January and February. Rain or snow fell on 90 days, the annual fall being 37·85 inches, an amount higher than the average and exceeded only once in the last seven years. July was the wettest month with a rainfall of 12·29 inches.

AN ANCIENT PICTURE.

A CORRESPONDENT asks us for information concerning an old picture, presumably an engraving, which has recently come into his possession. The subject is stated to be Harvey describing the circulation of the blood to Charles I., and it is signed in the left-hand corner "Robert Hannah" and in the right "Henry Lemon." It represents Harvey with a heart in his hand addressing Charles I., the viscus probably being that of a deer, as a deer's head is on the table. The Prince of Wales is leaning over the table with a Virgil in his hand and four other figures are grouped round, two of whom are presumably physicians as they are pressing their traditional round-knobbed walking sticks against their nether lips. Our correspondent would like suggestions for the names of these physicians and any information that may be forthcoming about the picture.

WE have received from Messrs. Heynes, Mathew, and Co., of Cape Town a catalogue of scientific apparatus which they are prepared to supply to medical men, public health authorities, departments of agriculture, practical mineralogists, and so on in South Africa. The catalogue contains all the usual urinometers and saccharometers and the prices quoted for more expensive articles such as bacteriological microscopes, prospectors' outfits, incubators, and microtomes are distinctly reasonable.

Dr. John M. Thompson (Chicago).—Our correspondent's address is undecipherable. The powder was analysed in our Laboratory and said to contain the very ordinary ingredients which occur in well-known formulæ of a similar sort. We added that we had received a list of testimonials containing "arrant nonsense." It is our experience that the American quack habitually and wrongfully makes use of our name in the way now brought to our knowledge. Letters pointing out the fact to the editors of American newspapers have no effect, so that we can occupy our time in more useful ways than writing them. Our note upon the powder was published in THE LANCET of April 26th, 1902, p. 1192. Perhaps our correspondent could assure the editor of the paper publishing the advertisement that the advertiser is an inaccurate person. We are sure that we should be unable to persuade him to have no more dealings of the sort.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 3rd, 1908.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 28	29·48	S.	0·12	106	65	55	56	58	Overcast
,, 29	29·63	W.	0·20	121	67	55	55	60	Fine
,, 30	29·89	W.	0·04	114	69	50	55	61	Cloudy
,, 31	29·94	W.	0·13	94	62	49	48	56	Cloudy
Sept. 1	29·20	S.W.	0·23	101	61	52	53	58	Cloudy
,, 2	29·83	W.	0·10	112	64	50	52	56	Fine
,, 3	29·98	S.	0·19	87	57	45	48	50	Overcast

During the week marked copies of the following newspapers have been received:—*Times, Daily News, Star, Yorkshire Post, Glasgow Herald, Pall Mall Gazette, Science Siftings, Daily Chronicle, Sheffield Weekly Telegraph, Daily Telegraph, Liverpool Mercury, Birmingham Post, Irish Independent, Scotsman, Newcastle Daily Chronicle, Army and Navy Gazette, Thames Valley Times, Hull Eastern Morning News, &c.*

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Saunders: The Medical Examination of School Children.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture: Dr. Davis: The Medical Examination of School Children: Throat, Nose, and Ear Affections.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. K. Scott: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. L. Williams: The Dental Examination of School Children.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Saunders: The Medical Examination of School Children.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Skin Diseases in School Children.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. K. Scott: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (8th).—London (2 P.M.), St Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Ophthalmic (2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.).

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (12th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Dr. Alimulla, Rajmehal; Messrs. Armour and Co., Lond.; Dr. H. J. Adamson, Lond.; Messrs. Adlard and Son, Lond.; Army and Navy Male Nurses' Co-operation, Lond., Secretary of; Sir T. Clifford Allbutt, Riffelalp; "Anxious"; Messrs. Claudius Ash, Sons, and Co., Lond.

B.—Dr. H. A. Ballance, Norwich; Mr. F. A. Brodribb, Yattendon; Mr. S. N. Bardhan, Singapore; Birmingham and Midland Hospital for Skin, &c., Diseases, Secretary of; Board of Education, Lond., Secretary of; Bedford County Hospital, Secretary of; Dr. A. G. Bagshawe, Frankfurt am Main; Messrs. Burroughs, Wellcome, and Co., Lond.; *British and Colonial Druggist*, Lond., Secretary of; Dr. H. H. Baker, Lond.; Mr. A. E. J. Barker, Lond.; Messrs. J. Baker and Sons, Clifton; Mr. C. Comber Brown, Crawley; Brighton, Hove, and Preston Dispensary, Brighton, Secretary of; Messrs. Blundell and Rigby, Lond.; Burnley Corporation, Town Clerk of.

C.—Mr. J. F. Colyer, Deal; The Children's Sanatorium (Holt), Lond., Hon. Secretary of; Messrs. T. Cook and Son, Lond.; Messrs. J. and A. Churchill, Lond.; Messrs. Chesterton and Sons, Lond.; C. R. G.; Mr. F. W. Clarke, Chorlton-cum-Hardy; Camwal, Lond., General Manager of; Messrs. Cassell and Co., Lond.; Messrs. W. and R. Chambers, Edinburgh.

D.—Dr. J. F. Halls Dally, Lond.; Messrs. Down Bros., Lond.; Derbyshire Royal Infirmary, Secretary of; Droitwich Hydro, Medical Superintendent of.

E.—Messrs. Elder, Dempster, and Co., Lond.

F.—Mr. S. H. E. Foxwell, Lond.; Messrs. Harvey Frost and Co., Lond.; Rt. Hon. Sir Edward Fry, Failand; Messrs. Fromy, Rogée, and Co., St. Jean D'Angeley.

G.—Dr. A. M. Gossage, Lond.; Dr. Alfred Gubb, Aix-les-Bains; Messrs. Gale and Co., Lond.; Gloucester General Infirmary, Secretary of; G. S.; Guild of St. Luke, Lond., Secretary of; Messrs. R. W. Greeff and Co., Lond.; Guest Hospital, Dudley, Secretary of; Glasgow Maternity Hospital, Secretary of; Mr. K. Goadby, Lond.

H.—Mrs. M. S. Heathcote, Lond.; Colonel T. Howard, Lond.; Hong-Kong, Principal Civil Medical Officer of; Mr. George A. Hawkins-Ambler, Liverpool; Fleet-Surgeon W. E. Home, R.N., Portsmouth; Messrs. Heynes, Matthew, and Co., Cape Town; H. S.; Mr. J. Hill, Lond.; Dr. W. Jobson Horne, Lond.; Sanitätsrat Dr. Artur Hennig, Königsberg-i-Pr.; Messrs. C. J. Hewlett and Son, Lond.; Mr. C. E. Hargitt, Sheffield.

I.—Ipswich Hospital, Secretary of.

J.—Mr. R. F. Jowers, Hove; J. R. P.; J. P. M.

K.—Mr. M. D. Keily, Plymouth; K. L. S.; Mr. D. A. Kinloch, Lond.; Mr. R. S. L. Knight, Lond.; Kesteven County Council, Grantham, Secretary of.

L.—Mr. H. K. Lewis, Lond.; Legal and Commercial Insurance Co., Leeds, Secretary of; Dr. G. H. C. Lumsden, Brighton; Mr. F. W. Lowndes, Liverpool; Leeds University, Registrar of.

M.—Mr. John Matthews, Lond.; Mr. H. P. Mulock, Ballycumber; Motorists' Purchasing Association, Lond.; Maltine Manufacturing Co., Lond.; Messrs. Morny Frères, Lond.; Professor Dr. H. W. Middendorp, Groningen; Mandalay Municipality, Secretary of; Mr. J. Murray, Lond.; Dr. H. D. McCulloch, Lond.

N.—Dr. David Newman, Glasgow; Mr. S. Narain, Lahore; Dr. R. G. Nothwanger, Buenos Aires; Newcastle-upon-Tyne Hospital for Sick Children, Secretary of; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

P.—Dr. F. L. Pochin, Fakenham; Dr. A. R. Parsons, Dublin; Dr. B. C. Powell, Roscrea; Messrs. Peacock and Hadley, Lond.; Mr. G. H. Pridham, Newton Ferrers; Sir R. Douglas Powell, Bart., Lond.

R.—Dr. W. F. Roach, Lond.; Mr. A. S. Reeve, Norwich; Royal Devon and Exeter Hospital, Secretary of; Royal Mail Steam Packet Co., Lond.; Ronuk, Lond., Managing Director of; Mr. W. J. Rawlings, Richmond; Radcliffe Infirmary, Oxford, Secretary of; Royal Mineral Water Hospital, Bath, Registrar of; Dr. C. Rolleston, Sevenoaks.

S.—Sir James Sawyer, Lond.; Messrs. G. Street and Co., Lond.; Salford Royal Hospital, Secretary of; St. Mary's Hospital for Women and Children, Lond., Secretary of; Messrs. W. H. Smith and Son, Liverpool; S. F.; Dr. Alice M. Sorabji, Delhi; Society for the Prevention and Cure of Consumption in the County of Durham, Sunderland, Secretary of, Subscriber; Dr. Harrington Sainsbury, Lymington; Mr. F. G. Saffery, Lond.; Mr. W. G. Sutcliffe, Margate; Scholastic, Clerical, &c., Association, Lond.; Star Engineering Co., Wolverhampton.

T.—Mr. J. Turle, Rottingdean; The Trefriw Chalybeate Wells, Managing Director of; Mr. S. Thrower, Lond.; Tubercle; Mr. H. Bell Tawse, Nottingham.

U.—University of Edinburgh, Dean of the Faculty of Medicine of; Mr. H. Upcott, Hull; Union, Ltd., Edinburgh, Secretary of.

V.—Mr. Edgar Vincent, Lond.; Verlagsbuchhandlung F. C. W. Vogel, Leipzig.

W.—Dr. T. A. Williams, Washington; Wrexham Infirmary, Secretary of; Dr. Edward Walker, Huddersfield; Messrs. F. Williams and Co., Lond.; Warrington Infirmary, Secretary of; Worcester General Infirmary, Secretary of; Mr. James R. Williamson, Lond.; Professor G. Sims Woodhead, Cambridge; Dr. R. Weiss, Lond.; Messrs. Willing, Lond.

Y.—York Medical Society, Hon Librarian of.

Letters, each with enclosure, are also acknowledged from—

A.—Aymard Patent Milk Steriliser Co., Ipswich, Secretary of; Nurse Austin, St. Leonards-on-Sea; Mr. E. Arnold, Lond.; A. G. E.; Apollinaris Co., Lond.; Alpha, Lond.

B.—Mr. J. Bunyan, Guntakal; Sir Lauder Brunton, Bart., Lond.; Mr. E. F. Bindloss, Royston; Mr. T. Bell, Lancaster; B. F. G.; Mr. A. J. Bacon, Southampton; Mr. M. J. Blackwell, Castletown; Mr. T. B. Browne, Lond.

C.—Dr. E. S. Cooke, Morpeth; Sir Francis R. Cruise, Dublin; Dr. D. Crowly, Loughrea; Messrs. Condy and Mitchell, Lond.; Mr. T. C. Crawford, Worthing; Mr. Cox, Cardiff; Messrs. A. H. Cox and Co., Brighton; Mr. E. Coppock, Blackpool; Messrs. Carter, Lond.

D.—Mr. R. Davis, Lond.; Dr. D.; D. M.; "Dental," Manor Park; Messrs. A. Driver and Sons, Chelmsford.

E.—Dr. F. J. E. Ehrmann, Chicago; E. E.; E. H. R.

F.—Dr. G. C. H. Fulton, Eston; Messrs. Fairchild Bros. and Foster, Lond.; Miss Fox, Lond.; F. W.

G.—Glasgow Royal Infirmary, Cashier of; G. A. H.; G. M. S.; G. D.; G. V., Worthing; Glasgow Corporation, Treasurer to the.

H.—Dr. D. Henderson, Llandebie; Mr. E. Haslam, Bolton; Major M. P. Holt, R.A.M.C., Lond.; Messrs. Hooper and Co., Lond.; Mr. J. Hart, Lond.

I.—Invermith Lodge Retreat, Colinsburgh, Proprietor of; Messrs. Ingram and Royle, Lond.; Ingham Infirmary, &c., South Shields, Secretary of.

J.—J. D. A. M.; J. A.; J. J. H.; Jarrow Education Committee, Secretary of; J. R. W.; J. H., Lond.

K.—Mr. R. V. Khedkar, Kolhapur; Mr. E. M. Knott, Sutton Coldfield; Miss Kidd, Godalming; Mr. A. Keyworth, Church Stretton.

L.—Mr. H. J. Limmer, Cromer; Lady Superintendent, Worthing; L., Westbourne Park; Leicester Infirmary, Secretary of; Die H. Laupp'sche Buchhandlung, Tübingen; Dr. T. Laird, Heywood.

M.—Dr. D. Macdonald, Cilfynydd; Dr. W. G. Mumford, Bath; Dr. W. B. Mercer, Ripponden; Miol Manufacturing Co., Lond.; Mr. J. M. Munro, Edinburgh; Mr. G. Mills, Lond.; M. A. K.; Dr. M.; Mr. R. Mosse, Berlin; Dr. A. H. Meeke, Omagh; Mors, Ltd., Lond.

N.—Dr. W. P. Nicol, Mount Ayliff; Mr. A. W. Nuthall, Birmingham; Mr. V. P. Norman, Lond.; N. C. B.

O.—Orsett Union, Clerk to the; Odol Chemical Works, Lond.; Dr. J. Oliver, Lond.

P.—Dr. A. H. Priestley, Norwich; Dr. V. Pleth, Guadalajara; Dr. A. M. Pryce, St. Asaph; Dr. D. Wells Patterson, Newcastle-on-Tyne.

R.—Mr. J. Randall, Liverpool; Captain F. G. Richards, R.A.M.C., Lond.; R R.; R. M. T.; Royal Boscombe, &c., Hospital, Bournemouth, Secretary of; R. Y. A.; Royal Southern Hospital, Liverpool, Secretary of; R. W. J.; Mr. H. P. Rees, Lond.

S.—Mr. E. Smyth, Portaferry; Mr. G. C. Stamper, Pembroke Dock; Mr. H. P. Scott, Lond.; S. H. C.

T.—Mr. W. H. Thomas, Bath; Teignmouth Hospital, Secretary of; Mr. P. Turner, Lond.; Mr. J. G. Turner, Newcastle-on-Tyne; Mr. J. Thin, Edinburgh; Mr. G. Thompson, Ashby-de-la-Zouch.

V.—Messrs. G. Van Abbott and Sons, Lond.

W.—Mr. A. H. Wade, Llandilo; Dr. W.; Mr. Joseph Walton, Saltburn-by-the-Sea; Mr. L. E. G. de Woolfson, Loughor; Dr. W. B. Warrington, Liverpool; Mr. F. Wiscombe, Lyme Regis; Worcester County and City Asylum, Powick, Secretary of; W. E. S. L. F.; Messrs. Wands, Leicester; W. D.; W. W.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

An original and novel feature of "THE LANCET General Advertiser," is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to insure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2*s.* 6*d.*; per additional 8 words, 6*d.*
Quarter Page, £1 10*s.* Half a Page, £2 15*s.* An Entire Page, £5 5*s.*

Agent for the Advertisement Department in France—J. ASTIER, 31, Rue Bapst, Asnieres Paris.